FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

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A spin during the past autumn on an aeroplane with Lieut. Barrington-Kennett over the Hamilton Camp, Salisbury Plain, with the 4th Cavalry Brigade encamped. A surprise snap at *réveille*.

EDITORIAL COMMENT.

Parliament and Military Aviation.

Parliament is now sitting again and with the long drawn-out debate on the Address ended, it is to be presumed that it will have time to devote to the really serious business of the nation. Most certainly one of the first matters upon which a definite statement of policy should be extracted from the Government is upon the question of its attitude towards military aviation. We have no desire to carp at the powers that be. When we conceived it to be necessary to point out the very obvious shortcomings in the official manner of dealing with this most important matter, we did not hesitate to do so. When assurances were given by the responsible authorities that aviation was really to receive full and proper attention at last, we struck the optimistic note and felt relieved that the efforts of those who have constantly urged that the neglect of the science constituted a pressing national danger had apparently borne the desired fruit. We say apparently, because up to the present all we have to show is by way of certain more or less academic assurances, which take us no farther than the pronouncement that "the Government has given serious attention to the matter and will do something of some sort in the very near future."

It is well to realise that even if the Government and the War Office is in fact alive to the importance of the matter—which, with the official assurances that have been vouchsafed to calm our apprehensions—we have still a very long way to go before we can look upon the question as even on the way to a satisfactory settlement. While we, on this side of the Channel, have to be content in the meantime with empty words, which may mean much or little as the case may be, France and Germany have proceeded long since from words to deeds. It is not at all necessary for us to go into the details of precisely what each Power has done and contemplates doing to put its aerial forces on a proper defensive and offensive footing. Those details we have given to our readers from time to time, and we have treated them in the way of comment almost *ad nauseam*.

What is required now is that the Government should lay its cards on the table—there can be no objection to that, inasmuch as the hands of our possible rivals are exposed for all to see—and to translate its broad assurances into the narrower equation represented by the pounds, shillings and pence that it proposes to devote to the development of aviation in our fighting services. Then we shall know exactly where we are and whether or not we are making proper and proportionate provision against the possible day of wrath.

We have the greatest possible confidence in the members of both parties who stand for aviation in the House, and we doubt not that they will take an early opportunity of tackling the Government on the subject of its intentions. All we have to say is, the sooner the better, for we have got to a stage when literally every day counts.

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Encouraging the Territorial Aviator.

Who is the genius at the War Office who has vetoed the training in flying of the London Balloon Company (Territorial)? Our readers will remember that some few months ago, by the generosity of a private individual an aeroplane was provided for the use of the Company, with shed accommodation, instructor and all. The men ambitious for instruction were only asked to defray their own living expenses at Eastchurch. Week-end instructional parties have been formed, which have been well attended, and half the Company may be said to be well on the way to becoming really practical aviators, while an officer and at least three of the men are ready to qualify for pilot's certificates. Our readers will, we think, agree that if ever a scheme deserved well of the authorities and the country this one does.

Now for the way in which the War Office encourages (!) patriotic effort. Some time ago the Army Council was asked to give its approval of the scheme, and was requested to grant a warrant to defray the railway expenses of the training parties, travelling to and from the ground at Eastchurch, in uniform. The astounding Army Council has refused both requests, with the cold official information that the Council cannot, in any case, sanction the training of the London Balloon Company in aviation! And so a promising scheme has come to an end, even though it is only the other day that Col. Seely told us, almost in so many words, that there was a possibility that in the near future an Aerial Territorial Force would be constituted.

According to the *Daily Telegraph*, the Balloon Company has never, except at the annual camp, received any practical training in balloon or kite work, for the simple reason that, despite repeated applications ever since the formation of the Company in 1909, no equipment has ever been granted to it. Now, as that journal observes, that private generosity and the fine public spirit of the officers and men of the Company have found the means to train it into an efficient air corps, authority steps in with its veto. The only comment we have to offer is, that if this happened in any other country, the probability is that someone would be hanged as high as Haman.

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The R.Ae.C. Trials Regulations.

There is not much to be said on the subject of the Trials Regulations of the Royal Aero Club, which were published in full in last week's issue of FLIGHT. They are at once simple, fair to both the entrant and the Club, and sufficiently elastic to avoid all the trouble that is apt to accrue when rules are made of so rigid a nature that those who administer them have no latitude of interpretation.

It is eloquent of the industrial progress made in aviation that there should have arisen the necessity for a code of cold-drawn regulations such as these to govern trials, which are in their nature essentially commercial. Such trials as they are intended to govern must not be confused for a moment with flights for spectacular or development purposes.

On the contrary, they are absolutely on all fours with the very valuable observed car trials conducted and certified by the Royal Automobile Club in connection with motoring. But there is just this difference between the two sister movements, that in the case of the motor vehicle it required many years of patient work and research before it had developed to the point at which such trials became necessary, either for the information of the public or the advertisement of the industry. In aviation, however, the case is different, for it is but yesterday that the flying machine was the chimera of a diseased brain, and now——.

THE MAGNETIC COMPASS— ITS CONSTRUCTION AND USE.

Now that it has been conclusively proved by various long cross-country flights that the compass is as necessary an instrument for navigating the air as it is for the sea, a few words on the subject will not be out of place. As nearly everyone knows, the magnetic compass in its simplest form is a magnetised bar of steel suspended from its centre, the earth's magnetism causing the bar, or needle (as it is generally termed) to point to the magnetic poles of the earth. These poles do not exactly correspond with the geographical poles, consequently the compass needle does not necessarily point true north and south, and the amount of this difference, called variation, is not the same at all points on the earth's surface; thus at London the variation is about 15° W., whilst at Bristol it is about 18° W.

Magnetic compasses can be divided into two classes, dry and liquid. The dry type frequently consists simply of a magnetic needle pivoted on a steel centre with the outside of the containing case marked with the cardinal points (N. S. E. W.) and the quadrantal points (N.E., S.E., S.W., N.W.). Another type has a card marked with the compass points fixed to the needle, this one being direct reading—that is to say, that the W. point on the card will be pointing to the magnetic W., and so on. Dry compasses frequently have some method of lifting the needle off its centre when not in use, and they also have some means of checking the movement of the needle when a bearing is required to be taken, as this class of compass suffers from the defect that it takes a considerable time to come to rest, and that vibration and movement of any description seriously affects it.

Compass Card No. 1.

Compass Card No. 2.

Although suffering from this disadvantage, dry compasses are considerably used for surveying, &c., as they can be made extremely accurate and delicate. They are often fitted with sights so that the exact bearing of distant objects can be obtained, and for convenience in use a small prism is fixed above the card which enables the eye to get the distant object in line with the sights, and at the same time allow the card to be read. In connection with aeroplane work they are extremely useful for obtaining definite marks, so that when the compass in the aeroplane comes to be adjusted there is for use some distant object whose magnetic bearing is accurately known. When fitted with a mirror on one of the sights, the sun's magnetic bearings can be obtained instead of using an object on the earth.

It must not be forgotten, however, that the sun's position changes rapidly, and that, to be of any use, fresh bearings must be taken continuously. These compasses are termed prismatic with azimuth sights, and although very useful for certain purposes are quite useless for aeroplane or dirigible work, none but those of the liquid class being of the slightest good. The construction of an ordinary liquid compass is rather more complicated than the dry type, owing to the bowl having to be made liquid-tight and in such a manner that the liquid can contract and expand with change of temperature.

In an aeroplane these changes, of course, are very large, and if not allowed for would probably burst the case with the heat, and get very empty with the cold. In liquid compasses a bubble of air is frequently seen, but provided that the bubble is not very large, it has no serious effect, although rather irritating to look at; the remedy is to hold the compass in such a position that the filling screw usually on one side is uppermost, remove the screw and rock the compass slightly so that the bubble of air comes to the aperture; with care liquid can now be inserted. It is an operation that requires some little practice, but is really not difficult. The makers of the compass will supply a suitable liquid, which should on no account be varied, as a good deal may depend on its specific gravity and viscosity.

Before the magnetic compass was perfected for aeroplanes many experiments were carried out with very dense liquids to try to damp out the vibrations and oscillations of the compass card which is immersed in it. These attempts, however, added so much friction to the movement of the card as to make the compass practically useless, and in the end a liquid of practically the same nature as is used in marine compasses was found to be the best, this being usually some form of alcohol more or less diluted down. It is of some importance to know in what climate the compass is likely to be used so as to employ the right liquid, otherwise it might freeze.

Compass Card No. 3.

Passing to the construction of the compass, the magnetic needle or needles are fixed to a metal float on which the card is fitted. The float is of such a size that when fitted complete it almost floats in the liqud in which it has been designed to work. The centre of the float is provided with a jewel which bears on a suitable point, the weight on it, however, being almost negligible, perhaps 10 to 20 grains.

For aeroplane work great care has to be employed in the design to avoid eddies in the liquid, &c., and the weight of the card is a very imporant point. If the period of the card in any way agrees with the rate of vibration of the aeroplane, matters become hopeless, and, although a special type of suspension is practically always required, it will rarely remedy this defect, although on the ground it may appear to be satisfactory.

We now come to the actual method of marking a compass card. Card No. 1 is the ordinary type as usually employed by small vessels and sailing ships where great accuracy is not required. It is divided into 32 points, ½-points and ¼-points. Starting from N. to E. the points are as follows :—

N.	N.E. by N.	E.N.E.
N. by E.	N.E.	E. by N.
N.N.E.	N.E. by E.	E.

The ½-divisions and ¼-divisions between the points are referred to thus :—

N. ¼-E., E. ¼-N., N.E. ½-E., and so on.

As a ¼-point is about 2¼° it is difficult to lay a course closer than that, which is not nearly accurate enough for large steamers. Card No. 2 is more generally employed sometimes with the degrees and compass points, sometimes with degrees only, which is quite sufficient. A course is then given as so many degrees E. or W. of N. or S. For instance :—

N.E. is referred to as N. 45° E.

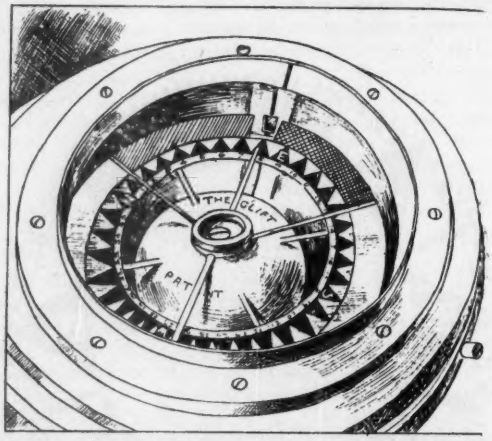
S.S.W. as S. 23° W.

N. ¼-E. as N. 3° E., and so on.

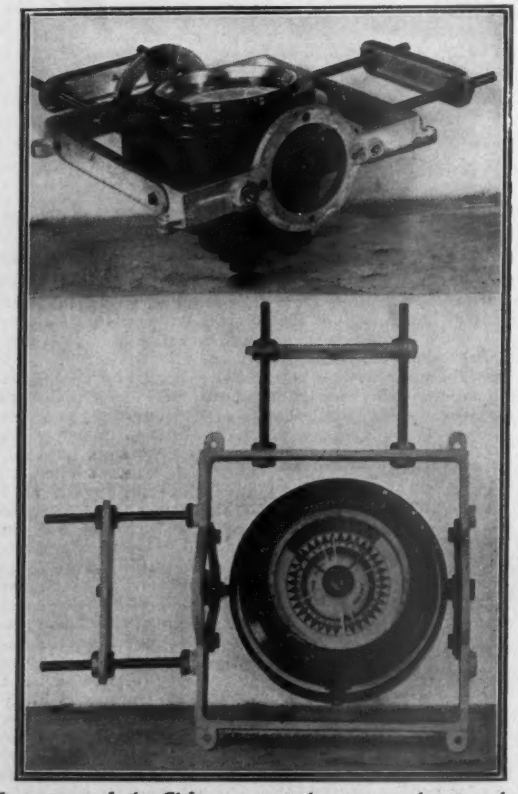
With this card courses can be laid to the nearest degree, and in addition there can be little confusion as to what course is meant, as there might be with the older method.

Card No. 3 gives the last and what seems to be the simplest method, especially for aviators, who probably are not accustomed to the use of the compass. The card is divided into 360° just as in Card No. 2, but instead of stoping at (90°) at E. and numbering downwards again to (O°) at S., the card is marked progressively round. S. becomes 180° and W., 270°—N. being 360°.

The advantage of this method is that it is extremely easy to remember; there is no question as to whether a certain course is say N.N.W. ½-W., or N. by W. ½-W., which, of course, is a huge error; neither can an error be made by mixing up E. and W., such as N. 25° W. or N. 25° E.; N.N.W. ½-W. becomes simply 335°; it is not necessary to mention N. or W. or anything else, neither is it necessary to convert, as it is as easy, probably easier to read a course off a map in degrees as it is in compass points. Which ever method is used is purely a matter of choice. This is not put forward as a novel idea, as it is now frequently employed on big steamers, and no doubt in future years will be almost entirely used. The writer usually shows compass courses on his maps in both methods, so that they can be used with compasses having either type of card without converting. In the actual Card No. 3 the figures are shown from O to 36, the O behind each figure being left out for the sake of clearness.



Sketch showing the adjustable "lubber point" on the Clift aviation compass. To guide the pilot there are coloured quadrants to either side of the pointer, which is set before starting, according to the bearings of the route to be taken. At night the north point on the compass is illuminated by a beam of light, and as long as this shows through the slit at the tip of the pointer, the pilot knows he is on his proper course.



Two views of the Clift aeronautical compass, showing the star-shaped rubber pieces by which it is suspended from the special frame. The screw below the compass is for lifting the compass card in order that the "lubber point" may be adjusted.

Compasses for marine work are practically always gymballed to allow the card to remain horizontal whatever the angle of the ship through pitching and rolling, and as the same motions take place in aeroplanes it is advisable to have the compasses so fixed. These gymballs consist of two rings pivoted at right angles to one another, the compass being hung in the inner one.

Having a suitable compass for aeroplane work, properly suspended in anti-vibrating supports, the next point to consider is the actual fixing in the aeroplane. Theoretically it should be central in the ship, a considerable distance from any iron or steel, and no dynamo or magneto should be nearer than say 40 ft. This, of course, is in theory, and is quite impossible in practice, and if the usual rules had to be absolutely observed magnetic compasses would have to be discarded altogether. It is important that the compass should be central for various reasons, one being that it avoids parallax, which could easily introduce a fairly large error, and it is well known that an aviator who has constantly to put his head to one side to observe his compass never looks at it sufficiently to steer a correct course.

In fixing a compass, provided it is fitted with its own anti-vibratory suspension, care should be taken that it is held fairly rigidly, otherwise new vibrations may be introduced. Iron screws and bolts for this job must on no account be used.

Having fixed the compass, it will nearly always be found that the N. on the compass card is no longer pointing to the magnetic north, and if the machine's head is turned in different positions,

the error will probably be found to increase or decrease in what very often appears to be the most erratic manner. Curve A taken from a Blériot before adjustment shows this very clearly. The central line would be the curve if the compass pointed correct magnetic north. From the curve it will be seen that the error varies enormously. This difference between compass reading and correct magnetic is called "deviation," and is produced by the iron, steel and magneto, &c., composing the structure of the aeroplane and engine. There is absolutely no way of shielding the compass from the effects of this iron, &c., and all that can be done is to neutralise its effect on the card as much as possible by the introduction of other magnets, soft iron, &c. By such means the deviation can generally be reduced to a very small, frequently a negligible amount, but in so doing the compass itself must become more or less sluggish. Aviators have frequently questioned when the writer has complained about some piece of exceptionally near iron which could easily be replaced by bronze or such non-magnetic material—"Why, if you can correct for the mass of iron in the engine, do you make such a fuss about this small piece?" The fact is that the small piece close to the compass may have a very much bigger effect than the engine at a distance, and to correct for the small piece would mean so many powerful magnets that the earth's magnetism would be able to exert very little effect on the compass needles. Another great trouble to the compass adjuster is the aeroplane builder who will insist on making his control levers, &c., of iron or steel, or possibly as a great favour he puts in a brass one made of tubing, carefully putting on a steel band to end it up with or else plugging it with steel. Of course, all his thoughtfulness in using a brass lever is wasted. Frequently after a compass has been very carefully adjusted and the job has been left as finished, it is found that a map case or speed indicator has been fixed with steel brackets and iron screws. Of course the whole of the adjustment, probably occupying 3 or 4 hours, is wasted. Another cause of trouble is the stowing away at the last moment of a bag of tools or spare parts, or perhaps the aviator slips a large spanner or knife into his pocket. In all these cases the compass is blamed if it reads incorrectly, whereas of course it is not the compass's fault at all. It is of extreme importance that all control levers should be of non-magnetic material, as not only do they have a large effect on the compass but, being a varying effect owing to the different positions they occupy from time to time, it is impossible to correct for them.

(*To be concluded.*)

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The Aero Club of America "Bulletin."

BEARING the above title, there comes to hand a charming publication issued by the Aero Club of America. It is very artistically and tastefully got up, and bears the impress of having been produced by those to whom money is no particular object. It contains a number of drawings by well-known American artists, printed on plate paper 10 ins. by 7 ins., several of which we reproduce. Most of the articles are illustrated by a large number of photographs. The longest article is one by Mr. Henry Woodhouse, on the evolution of aviation in 1911. There are also several interesting views of the interior of the Aero Club of America's fine Headquarters.

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Wright Brothers and the Gordon-Bennett Race.

FEARS having been expressed that foreign aviators would not visit America for the Gordon-Bennett race in view of the Wright Bros. legal actions for alleged infringements of patents, the Aero Club of America have obtained assurances from the Wright Bros. that they will not in any way restrain foreign aviators who visit America for the International Race Meeting.

An American Aeronautic Laboratory.

THE Aero Club of America is at present giving its consideration to a project for establishing a laboratory, similar to that at St. Cyr, in France, for the studying of various problems connected with aeronautics.

From the Aero Club of America "Bulletin."

A sail! A sail

ALEXANDER PRIZE.

THE following is the report of the Advisory Committee for Aeronautics on the Test of the Green engine to which the Committee awarded the Alexander £1,000 prize, as announced in FLIGHT last week :—

Description of Engine.—*a. General*—1. This engine has four separately mounted cast steel cylinders, machined inside and out, of 140 mm. bore, with a stroke of 146 mm. The water-jacket consists of a thin copper helmet, the joint with the cylinder at its lowest end being by a rubber ring fitting into a groove in the cylinder, so that the expansions of the cylinder and helmet are independent. The cylinders are mounted on an aluminium crank-case, the holding-down bolts being carried through to serve as supports for the crank-shaft bearings. Auxiliary-ports are provided by drilling holes just below the water-jacket.

b. Valves.—2. The valves are of the mushroom spring-closed type, in detachable cases. Each valve is enclosed within a small dome, having an orifice through which the valve is actuated by the end of a short tappet-pin. The cam-shaft is carried in bearings in a small oil-tight horizontal casing, divided into halves, and is rotated by an encased vertical spindle situated in front of the engine. This spindle is driven by a pair of worm-wheels from the crank-shaft. The rocking-levers are pivoted in extensions of the cam-shaft case, their striking ends being provided with adjusting screws, and the ends operated by the cams with rollers.

c. Carburettor.—3. This is of Zenith make, with separate float-chamber.

d. Cooling.—4. The circulation in the jackets is maintained by a water circulating pump, the water being delivered to two spiral tube radiators, placed obliquely, one on each side of the engine. The tubes are arranged two deep, and are staggered.

e. Lubrication.—5. The main oil channel is cast solid with the crank-case, and from this oil is forced by a small gear-pump through leads at right angles communicating directly with each of the hollow columns through which the holding-down bolts pass, and thence to the main bearings and crank-shaft, the latter being hollow. By this system the use of separate pipes is dispensed with. The crank-case does not hold any appreciable quantity of oil, but pumps directly from an oil tank placed immediately under it.

f. Ignition.—6. The ignition is by Bosch high-tension magneto.

g. Bearings.—7. The crank-shaft is provided with bearings between each throw, and is slightly offset from the centre line of the cylinders. The ball-race is designed to be used with either a propeller or a tractor.

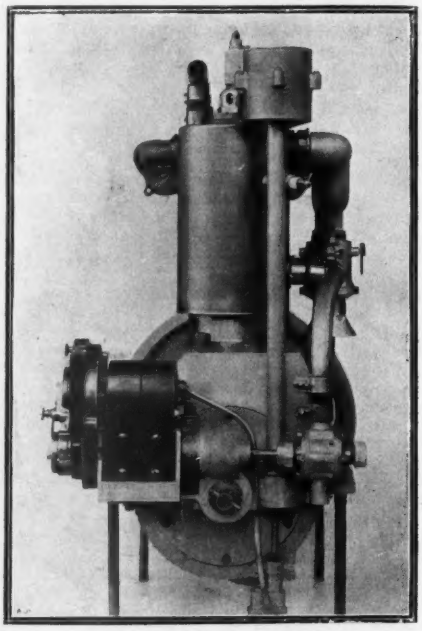
h. Weight.—8. The weight, as defined in Regulation 4, including cooling apparatus and supply of water for 12-hour run = 375·1 lbs.

Declared b.h.p. = 65.

Weight per declared b.h.p.* = 5·77 lbs.

9. This engine was run without a silencer.

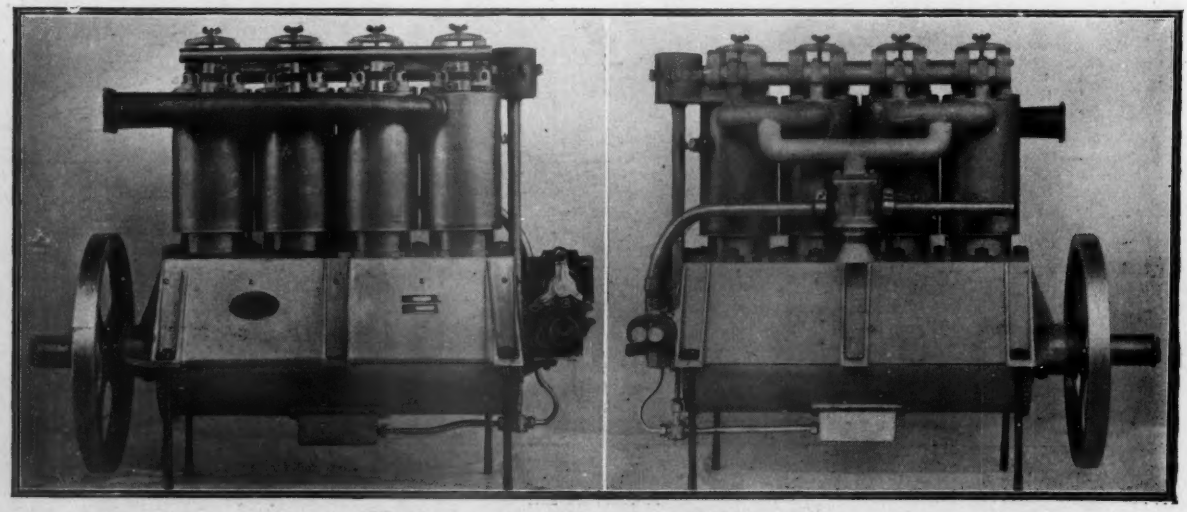
10. The engine was delivered at the Army Aircraft Factory, on September 29th. The first short preliminary run was made on December 14th, 1911. After 26 minutes running the engine began to lose power rapidly and was stopped. On external examination one cylinder was found to be blue. Further investigation showed that there had been no water in the jacket during the short run, and as no obstruction could be found, the absence of water was supposed to be due to an air-lock. The piston was tight in the cylinder, but had not seized, and was pulled out by hand: and the rubber jointing-ring to the water-jacket had been partially destroyed. The damage was slight, but permission was given to fit a new cylinder and piston. On December 18th, preliminary runs of a total duration of an hour-and-a-half were made.



End view of the Green engine, showing magneto and water-pump.

Results of Trials.

11. **Endurance Test.**—The official trials were commenced at



The Green engine, which won the £1,000 prize.

* The weight per measured b.h.p. is given in the table on p. 167.

10.12 a.m., on December 19th. Nothing occurred in the nature of stoppages or breakdown, and the engine completed the whole set of trials at 6.7 p.m., on Thursday, December 21st.

12. The mean b.h.p. during the two 12-hour runs was 61·6 at 1,150 r.p.m., against the minimum of 58·5 allowed by the regulations from the declared b.h.p. The throttle was untouched from starting up until shutting down, and the second day's trial was commenced without a preliminary run.

13. The gross weight per b.h.p. for a 12-hour run, as defined in the regulations, including petrol consumption and supply of oil and water, with containing vessels, was 18·3 lbs., made up as follows:—

a.	Weight* per b.h.p. of engine	6·1	lbs.
b.	,, petrol consumed in 12-hour run	7·1	,,
c.	,, ,, tank	1·6	,,
d.	,, supply of oil for 12-hour run ...	3·0	,,
e.	,, oil tank	0·5	,,
		18·3	,,

The petrol tank was unnecessarily heavy.

14. Full particulars of the weights, &c., are given in the tables appended to this report. Typical portions of the watt-meter and speed-charts are also reproduced.

15. **Vibration Tests.**—Vibration records were taken during the 12-hour runs, portions of which are reproduced below.

16. **Maximum Power Test.**—Before this test was made the valves were removed and ground in. The wear was very small in both inlet and exhaust valves. A little pitting was noticeable on the exhaust-valve only. The mean b.h.p. developed during the 7 minutes' run was 67·8 at 1,210 r.p.m. The maximum b.h.p. per pound of the weight, as defined in Regulation 4, was ·180; *i.e.* the weight per b.h.p. (maximum) was 5·5 lbs.

17. **Tilting Tests.**—The following tests of one hour each were made with the results stated. The engine ran quite satisfactorily in both trials.

(1) *Propeller end down.*—Mean b.h.p., 60·4 at 1,125 r.p.m.

In this test the float-chamber was below the jet of the carburettor, but no flooding from the float-chamber was observed.

(2) *Tilted about a longitudinal axis.*—Mean b.h.p., 62·3 at 1,156 r.p.m.

18. **Wear of Working Parts.**—On the completion of the trials the engine was dismantled and the working parts thoroughly examined. The only signs of appreciable wear occurred in the helical gearing driving the cam-shaft, &c., with some slight pitting of the exhaust valves

* The weight is here taken as defined in Regulation 4, including cooling apparatus and supply of water for a 12-hour run.

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Tabulated Result of the Trial.

	First 12-hour Run.	Second 12-hour Run.
Gross run	12 hours	12 hours
No. of stops	0	0
Total duration of stops	0	0
Net run...	12 hours	12 hours
Mean speed r.p.m.	1,155	1,145
Mean b.h.p.	62·0	61·2
Weights—	lbs.	lbs.
Total water in radiator jackets	31·9	31·9
Total water lost	1·9	1·7
Total petrol consumption in 12-hour run...	429·6	441·1
Total oil consumption in 12-hour run ...	134	126

Mean Weights.

Weight Calculation.	Total. lbs.	Per b.h.p. per 12-hour Run. lbs.	Per b.h.p. hour. lbs.
Engine alone	301·9	—	—
Radiator and connecting tubes	41·3	—	—
Total water in radiator jackets, &c. ...	31·9	—	—
Weight as defined in Regulation 4 ...	375·1	6·1	—
Petrol consumed in 12-hour run ...	435·4	7·1	0·590
Petrol tank	98·5	1·6	—
Total oil supply for 12-hour run ...	184·0	3·0	0·244
Oil tank	33·0	0·5	—
Gross weight of engine for 12-hour run	1126·0 lbs.	18·3 lbs.	—
Oil consumed in 12-hour run	130	2·1	0·175
Water lost	1·8 gals.	0·03	—
Capacity of petrol tank	130	—	—
Capacity of oil tank	30	—	—

Note.—The petrol was supplied by Messrs. Carless, Capel, and Leonard, and was described as their standard petrol of s.g. ·700.

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President Taft on Aviation.

FROM the text of the speech made by President Taft at the annual banquet of the Aero Club of America we cull the following suggestive remarks:—

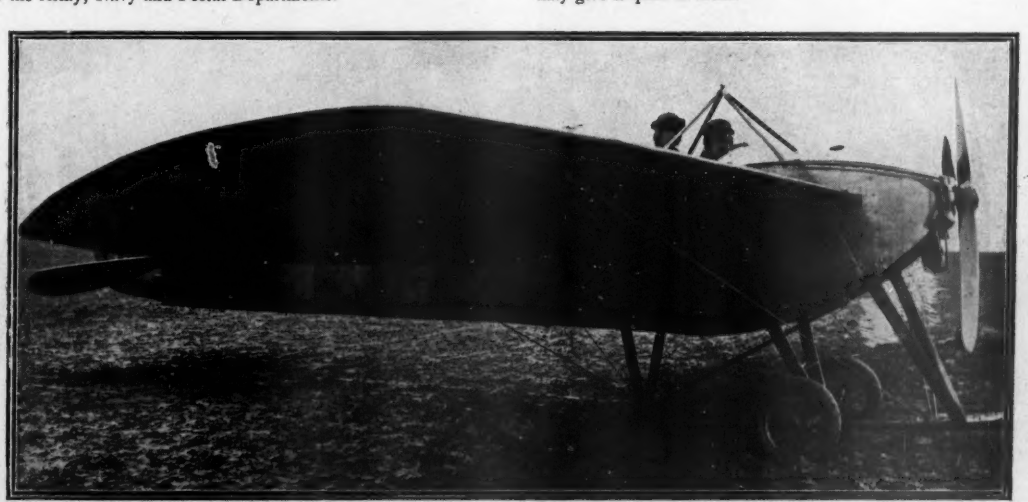
"My first thought when I entered this room was, How many of you really live in the air? There ought to be some method of distinguishing those who really fly and those who only want to fly. Members of the former class might have little wings attached to them.

"The Government could certainly find an excuse for becoming interested in aeroplanes because of the use they would undoubtedly be to the Army, Navy and Postal Departments.

"We are in friendly rivalry with France in many things, and it is perhaps not pleasing to note that she is outstripping us in the number of her aviators, and in the support she is getting from the Government.

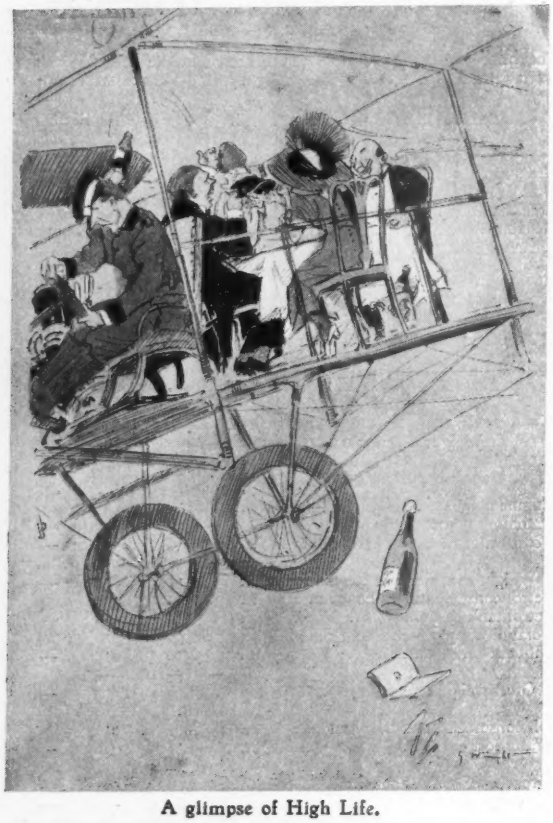
"I will be frank in saying that I first regarded the aeroplane as a toy. That impression has faded away. The aeroplane is going to affect us, as the telephone, the automobile and many other things, without which we would now find life impossible.

"I believe in the future of aviation, and I think that any encouragement or quasi-official recognition that my presence here may give is quite in order."

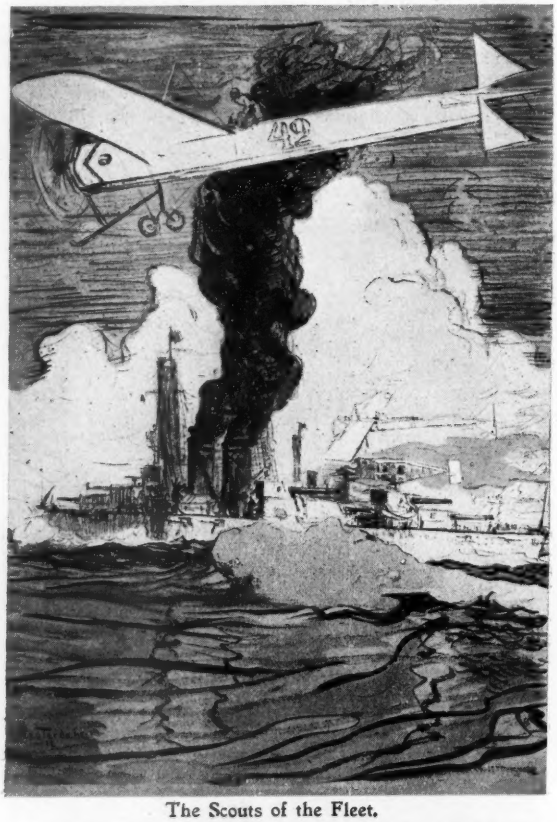


Lieut. H. B. Barrington-Kennett, of the Air Battalion, and his passenger, Corpl. Ridd, R.E., taking off on Wednesday of last week at Salisbury Plain for the Mortimer Singer Prize, when he covered 249 miles 840 yds. in 4 hrs. 51 mins.

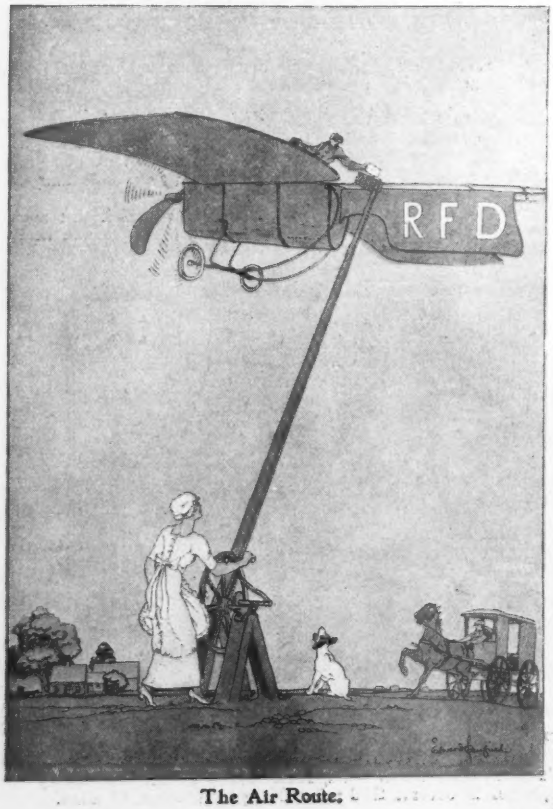
Some Plates from the Aero Club of America "Bulletin."



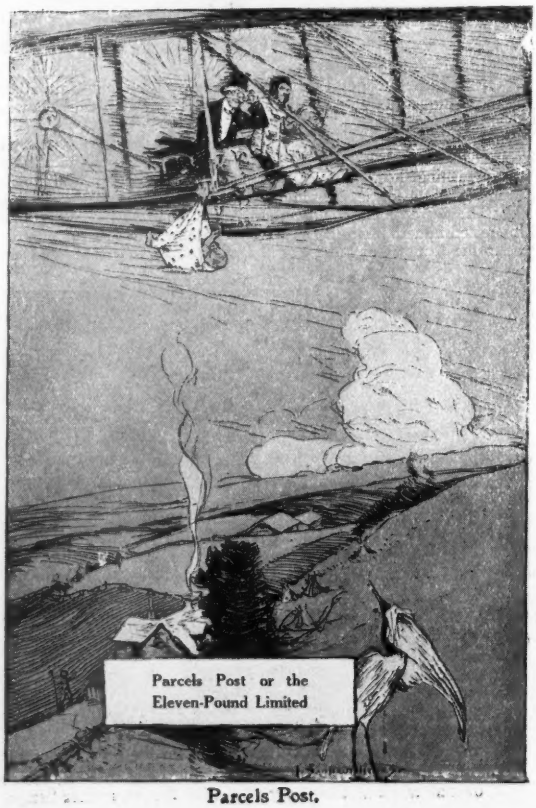
A glimpse of High Life.



The Scouts of the Fleet.

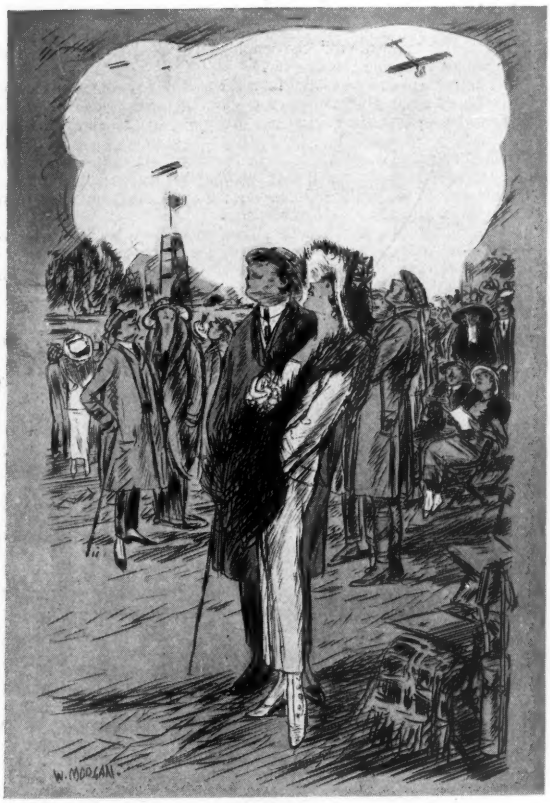


The Air Route.



Parcels Post.

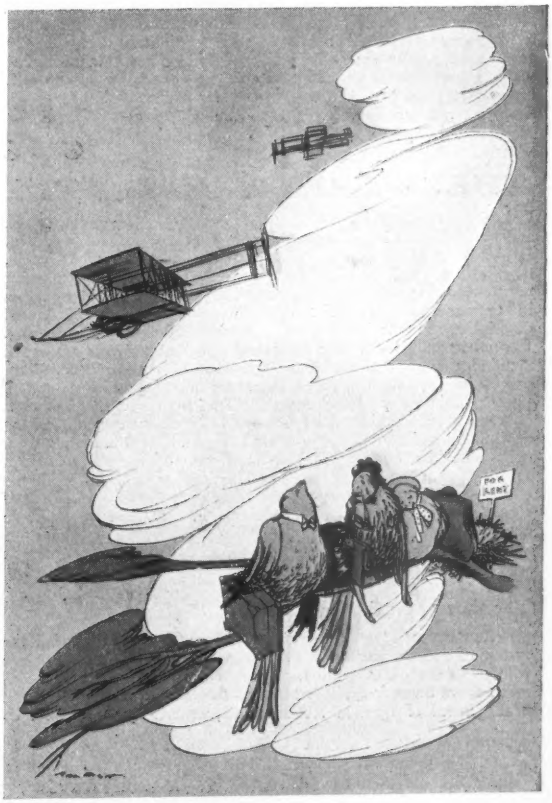
Some Plates from the Aero Club of America "Bulletin."



Sky faces.

Fame!

"Hey, Bill, git yer gun, here comes the Goldingest Hawk I ever see."



Dispossessed!

FLIGHT IN SOUTH AFRICA.

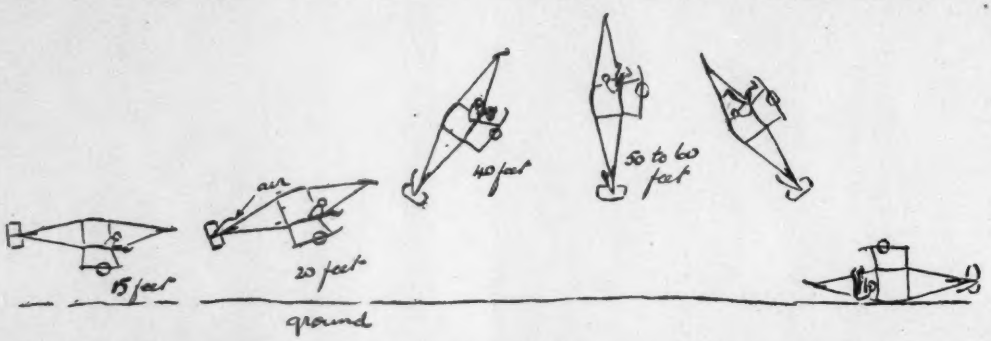
SINCE the African Aviation Syndicate, Ltd., whose more active members are C. Compton Paterson, E. F. Driver, and Capt. Guy Livingston, commenced their operations at Cape Town, little news has leaked through to England as to their actual doings in that colony. As regards the accident that Compton Paterson suffered at the Green Point Track, while flying that excellent little biplane of his own construction, many and varied have been the causes of that mishap put forward by correspondents of the daily journals. It is therefore more than interesting to hear from the pilot himself what actually occurred. Mr. Paterson under date January 31st, writes as follows:—

"By now you will have heard of my smash—pretty bad one too. What really happened was that owing to the machine having been exposed to the weather ever since it was put together, and during the time our tent was being made, the fabric became, during wet weather, very tight, and then when exposed to the sun became terribly slack. This sort of thing going on from day to day evidently did not do the tail any good. The day before the smash I flew from Kenilworth, which is eight miles from Cape Town, over Table Bay and all round Three Anchor Bay, then landed in the Green Point track ready for the next day's demonstrations. During this flight, which was really the most interesting I have made yet, I had to fly through and sometimes over huge rain clouds and naturally got soaked to the skin—likewise the machine. I think this last soaking must have split the fabric on the front boom of the tail, because as soon as I left the ground for my next flight the tail simply opened out horizontally, and the top fabric forming a bag forced the tail down until the machine travelled straight up and eventually turned completely over.

"I hope you can understand from the enclosed sketches just what happened. I was absolutely powerless to do anything, so at about 20 feet switched off the engine and hung on to the elevator for a downward movement.

"Had 2 weeks in hospital, then another 2 weeks on crutches but now able to get about almost as if nothing whatever had happened. Am reconstructing the machine, and on the 17th prox. am giving an exhibition with Driver at Johannesburg.

"Previous to the smash both Driver and I were putting up some pretty good work. Both got up over 4,000 feet. My machine lifts anything you care to put on board and climbs almost the same as a 50-h.p. Blériot. Surprised Driver beyond measure.



C. Compton-Paterson's humorous "re-construction" of his mishap at Green Point track.

"Freddy Lewin, as I suppose you know, is in Cape Town and has been up with me on several occasions.

"Driver and Guy have already gone to Johannesburg, and I and Turner—our engineer—follow with the biplane in a very few days.

"Flying round and about Cape Town is rather dangerous on account of the air currents caused by Table Mountain and the other mountains surrounding the district. Am hoping flying up country will be easier work.

"Driver and I were presented with beautiful silver cups and gold medals from the citizens of Cape Town. Guy also got a medal for hard work. I think he deserved it too.

"We all wish you every success, and wish also to be remembered to the flying world at large."

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THE WERNER AND PFLEIDERER AVIATION MOTOR.

WE are constantly being told that the Continental nations in general, and the Germans in particular, are far more scientific than we are. It is not for us to gainsay it, but if it is so the national character, more especially of the latter nation, seems to suffer from a peculiar reluctance to reproduce working drawings of motor cars and engines in their automobile press. We have before us an illustrated description, in the *Allgemeine Automobil-Zeitung* (Vienna ed.), December 24th 1911, of a new and apparently soundly-designed 4-cylinder aviation motor of the conventional vertical type. This description occupies five pages, three and a half of which consist of photographic views of the engine. The etterpress description is poor, technical details there are none, while diagrams and working drawings are conspicuous by their absence. If it were not for a deep-rooted fear of being seized as a spy, we would make an attempt to investigate the matter further; but nothing, no, not even the eternal gratitude of our readers, shall ever-tempt us to run the risk of several years of (compulsory) residence in the Kaiser's hospitable domain.

Et ego in Arcadia (?) nixie! (though not compulsorily that time).

The motor, 130 by 150 mm., has steel cylinders and nickel water-jackets drawn from the solid, a 5-bearing crank-shaft, overhead valves, and weighs complete 255 lbs. A sliding cam-shaft is provided, by which the exhaust-valve can be kept open, this serving as a "decompressor." The water-jackets are placed in position over the top of the cylinder, and rest with their lower edge in a grooved flange turned on the cylinder-wall; melted solder is poured into this groove, and so holds the jackets in their places. Lubrication is performed by a multiplunger pump, and the water circulation is in the charge of a centrifugal pump. A Schiske carburettor is fitted, but details are not available. How the joint between the cylinder-head and nickel water-jacket is made is another "secret." We wonder what offence the unhappy possessor of such a motor would be guilty of if he had occasion to dismount his cylinder-heads and discovered this dark mystery.

The motor consumes 21 kilograms of petrol and 14 kilograms of lubricating oil per hour.

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The Care of Accumulators.

ALTHOUGH Magneto Ignition has more or less superseded the system of accumulator ignition, there are still a number of people who prefer the older method. Very few owners really understand much about them, but a little book on the subject of the Care and Management of Ignition Accumulators, written by Harold H. U. Cross, is published in the S. and C. series and should do much to help them. It contains practical information on the charging and repairing of motor cycle, motor car, and other similar ignition accumulators, while it also gives particulars of a system of electric lighting for small houses, &c., by means of accumulators. The book is illustrated by several line drawings, and it is published by Messrs. E. and F. Spon at the price of 1*s.* 6*d.* net.

AIR EDDIES.

FOLLOWERS of aviation generally, and more particularly those who have keenly followed the vastly important research work of Mr. J. W. Dunne, will be grieved to know that this eminent pioneer has been lying seriously ill with pneumonia at his cottage at Eastchurch. The latest news received at this office was to the effect that, provided no complications arise, he might be considered out of danger. This cheers us and we sincerely hope he may soon be enabled to return to his work in connection with the science for which he has done so much.

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The next aspirant for cross-Channel honours is Lieut. Walter Lawrence, of the 7th Essex Regiment, who is at the Shoreham Aerodrome awaiting an opportunity to effect the crossing on his Blackburn monoplane, taking with him Mrs. Leeming, a well known Society hostess, as passenger. The machine on which he intends to accomplish the flight is the identical monoplane with which Bentfield Hucks carried out his "missionary" work in the West Country at the close of last season. Lieut. Lawrence is, by the way, the first Territorial officer to master the intricacies of both monoplane and biplane.

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His brother territorial, Mr. L. Seymour Metford, of the London Rifle Brigade, who obtained his certificate on a Blériot monoplane last October, is now acting in the capacity of assistant manager for Blériot in England.

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"Georgie" Barnes was, to say the least of it, ever original. He has now turned impressario, and even in that capacity has not been able to forsake his keenness and enthusiasm for aviation. At the Canterbury Music Hall on Monday next he will appear in an aviation sketch, which he has written and staged himself, with a company of 25 performers. I have been assured that the production follows closely upon approved musical comedy lines, and its final scene will constitute a realistic stage impression of an aeroplane in flight.

Let as many of us as can be present on the opening night to give the show and Georgie himself a rousing reception.

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Great are the expectations following the news that Chambenoit, who has lately been piloting the Paulhan-Tatin Aero Torpedo, has decided to start record-annexing. As recently as Saturday last he was flying that machine at Rheims, and completed a circuit of just over six miles at a height of 450 feet, and at the astounding speed of 93 miles an hour. That this speed has been obtained with a motor of only 50-h.p. is indeed remarkable, and shows that we shall not altogether have to look towards higher power in order to attain greater speed.

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Lincoln Beachey is evidently about as proficient at "ragging" as he is at flying. During the opening days of the Los Angeles meet he had taken a keen delight in teasing Miss Blanche Scott, with the assertion that he had a lady pupil who could, to put it colloquially, "fly circles round her." He further promised to produce her on the Saturday afternoon of the meet. Consequently the sightseers were in a terrific state of excitement when, towards the middle of the afternoon, a heavily veiled and fashionably attired woman was escorted to Lincoln Beachey's Curtiss biplane by Hillery Beachey. This mysterious lady was not long in establishing herself in the pilot's seat, and getting away before anyone had an opportunity of a close examination. Once in the air she caused a great deal of trepidation amongst the crowd by her erratic control, but, settling down to work she gradually climbed until an altitude of 4,000 feet was reached, where, to the general astonishment of all present, she switched off her engine, and executed a long and steady *vol plané* to earth. The first to congratulate her on the exploit was Miss Blanche Scott herself. Her greeting took the form of a vigorous grab at the head-gear of the mysterious lady pilot. Her hair came away in Miss Scott's hand. "She" was Lincoln Beachey!

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The new 60-h.p. E.N.V.-engined Avro biplane that Lieut. Wilfred Parke, R.N., intends to pilot in his attempt on the Mortimer Singer Naval Prize, is completed—a thoroughly fine job, one calculated to increase the reputation of the Avro firm for excellence of design, construction, and finish. It differs from its predecessors in that the chassis has undergone considerable alteration, and that the fuselage is now of rectangular section, and so deep that only the heads of the pilot and passenger project through the padded openings on top. It is interesting to notice that celluloid windows have been provided at the floor of the body, in order to increase the pilot's range of vision in cross-country flying. We hope to review this machine more fully in a forthcoming issue.

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It was typical of Gilmour's remarkable individuality that he should entrust a letter with a friend to be opened in the event of his death, expressing the form which his obsequies should take. His repugnance for a funeral hearse, and his preference for a motor lorry is undoubtedly original, but seems quite natural when connected with the master pilot Gilmour, who, since he left Clifton College, was intimately connected with motoring in all its forms. That there should be no moaning or mourning, and that everyone should be "merry and bright" is more than characteristic of his cheery nature. Despite this latter wish, there are few but will mourn the passing of so popular and skilful an exponent of flying.

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Mr. Harry Delacombe has, I hear, terminated his appointment, last week, as flying manager to the British and Colonial Aeroplane Co.

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Referring to the prize of £400 offered by the Peugeot firm for a flight—or, really, it should be termed hop—of only 33 feet by a manual or pedal-propelled aeroplane, it is interesting to recall that a month or two ago a certain gentleman in France, M. G. de Puiseux, to whom the problem of flying by man's natural means was a careful study, claimed to have built a series of machines, the first of which was successful in making short hops, the second going even further and being accredited with flights of over 200 yards. At that time he was, as the result of his previous experience, commencing on the construction of a third machine, which according to his hopes was going to eclipse his previous efforts. If we are to attach much credence to his claims, I should imagine he would start about favourite. In his description of the machine I think he rather gives the game away by saying it may be transformed into a little aeroplane by fitting a motor of 25 to 30-h.p.

"OISEAU BLEU."

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Mr. Holt Thomas and the Farman Machines.

ON Saturday last Mr. Holt Thomas, who has taken up the British rights of the Henry and Maurice Farman machine, was at Buc testing the various types. Piloted by Maurice Farman, he made a cross-country flight on the latest military-type machine at varying heights and speeds, passing by Voisins, St. Cyr, Trappes, Guyancourt and thence back to Buc. On the Sunday following, Mr. Thomas visited the Chalons ground, going all over the works with Henry Farman and inspecting all the innovations made and being experimented with, finishing up with cross-country flights, first on the monoplane in the direction of Chalons and afterwards on the latest type military biplane to Mourmelon and back. The military-type biplane was one of the batch to be delivered to the Greek Government, with a 70-h.p. Gnome motor and is very fast. The introduction of the latest type Farman machines to this country will be extremely interesting, as although there are many Farman machines here, they are, of course, all completely out of date, and do not resemble in any way the machines turned out at the present moment in large quantities for every Government by the Farman brothers.

"Aeronautic Patents."

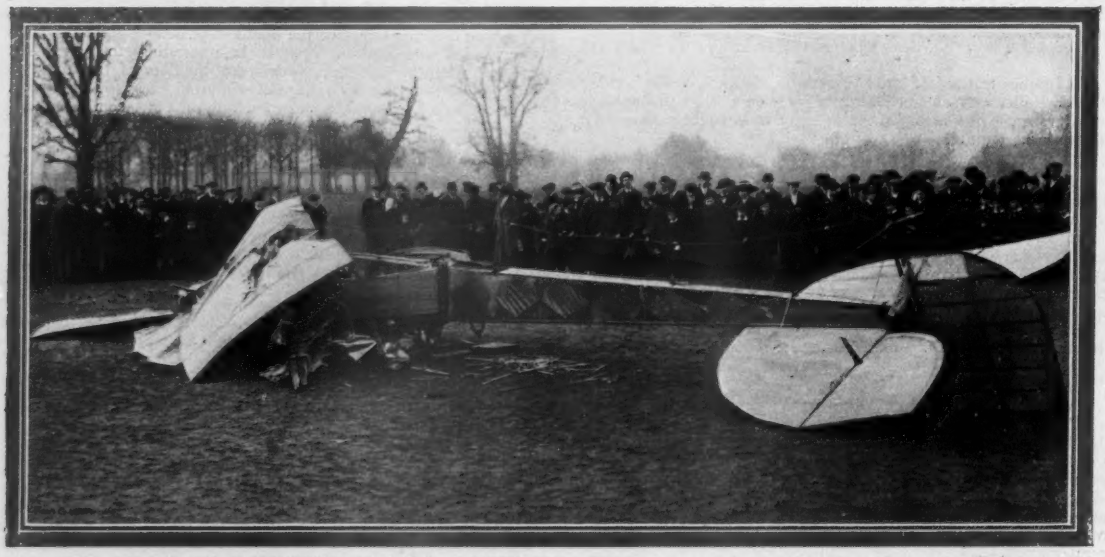
THE award of the Alexander Prize for aeroplane engines calls to mind the great amount of work which has been done by Mr. Patrick Alexander for the cause of aeronautics. Among other things there is a little book, which was published in 1893, in which he and Mr. Griffith Brewer summarised all the patents issued up to the end of 1891, dealing with aeronautics.

The various patents are summarised in a very clear and succinct manner, and the most important of them are illustrated. One of the first is that of Henson, dated 1842, covering a machine including several of the characteristics of the Antoinette of to-day, while in turning over the leaves of the book one notices the names of Horatio Phillips, Sir Hiram Maxim, G. L. O. Davidson, and other early workers. The compiling of the book must have meant a great deal of labour, but it is hoped that some day it may be found possible to bring it up to date, as such a book should prove extremely valuable to all workers in the science.

Who will undertake the task?

THE LATE MR. GRAHAM GILMOUR.

SATURDAY last, February 17th, was a day of mourning for the entire aviation industry, for just before noon on that day Douglas Graham Gilmour, one of our foremost English pilots, was claimed a victim to the triumphal progress of aviation. Enthusiastic, skilful, active, daring, but with his daring always tempered with a certain caution, he was one of those pilots whom the science and practice of heavier-than-air locomotion could little afford to lose. The details embracing this tragic incident are briefly these. Shortly after 11 o'clock he started away from Brooklands on the Antoinette-engined Martin-Handasyde monoplane, with the intention of making a cross-country flight. That he did not intend to fly to Hendon or down the river is rather borne out by the fact that he gave his mechanics to understand he would return within the hour. Passing over the Old Deer Park at Richmond at a height of what is generally estimated to be 400 ft., the machine, apparently without any warning, suddenly failed, and with its occupant was dashed to earth, a tangled mass of wreckage. Poor Gilmour, as we all know, was killed instantaneously. At the inquest, which was held on the following Tuesday morning, a verdict of "accidental death" was recorded, coupled with the remark that the jury were of the opinion that something must have happened to the machine to have caused the accident, although the evidence was not sufficient to show what. Eye-witnesses gave evidence to the effect that the left wing broke in the air, but that all truss-wires were found intact when the wreckage was examined rather casts a doubt upon this theory. At the same time, knowing Mr. Graham Gilmour's ability at the lever, and even taking into consideration that he had recently complained of a certain giddiness when flying, it seems difficult to connect the cause of the accident to any failing on the part of the pilot. The theory that the accident was due to the peculiar internal condition of the air on Saturday appears to be the most tenable, and this would account, if the failing of the wing explanation is entertained, for the abnormal strain that would be necessary to rupture so strongly and conscientiously constructed a wing as those with which the Martin-Handasyde machine was equipped. In every part of the south of England where flying was indulged in on Saturday last, this extraordinary condition of the atmosphere was noticed. At Brooklands flying was abandoned for a considerable time for that reason. At Hendon, Ewen, while flying his Deperdussin about mid-day, met with a "pocket," which, although he was turning to the right, had the effect of banking his machine heavily in the opposite sense to that necessary for the turn. With full warp and full rudder, and diving steeply, the dangerous cant of his machine was not corrected until he had dropped, in his estimation, 200 ft. At Eastchurch, Lieut. Longmore, at a height of 2,000 ft., met with a "pocket" of so serious a nature that he asserts he has no desire for a repetition of the experience. Lieut. Lawrence at Shoreham had noticed a similar state of affairs. The accident that Capt. Gilbert de Winckels sustained at Salisbury Plain has also been attributed to these abnormal conditions in the air.



MR. GRAHAM GILMOUR'S FATAL ACCIDENT.—General view of the monoplane after the disaster.

If this theory that the wing broke in the air is entertained, we can but cite the occurrence as an appalling example of bad luck, for to us it is altogether unnatural to connect structural failures with a machine so thoroughly well designed, and so carefully and conscientiously constructed as the one on which poor Gilmour met his end.

We voice the feelings of all those interested in aviation, not only in England, but in the whole world, in extending our heartfelt and sincere sympathies to the relatives of the lamented pilot, and to the constructors of his machine.

Mr. Gilmour's portrait appeared, it will be remembered, as a Flight Pioneer in these pages on October 29th, 1910.

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The Navy and Aviation.

QUESTIONED in the House of Commons by Mr. Alan Burgoyne, on Tuesday, as to whether the Admiralty intended to develop hydro-aeroplanes or some form of aerial vessel suitable for naval purposes, Mr. Winston Churchill said the answer was "Yes." Up to the time of going to press, this is the sum total of Parliament's work referring to aviation.

A Busy Day for Cody.

QUITE a lot of work was put in by Mr. Cody on Saturday on his big bus. He started off with a long flight round Winchester, taking about three hours and traversing 145 miles. He then took his son Frank and another passenger to a height of over 2,000 ft., and scouted round the Laffans Plains at a speed of about 60 miles an hour. After this he flew with his two passengers to Brooklands and back.

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Prizes for Safety.

AT a conference of representatives of the various bodies interested in aeronautics in France, held at the headquarters of the Aero Club of France, on the 17th inst., it was decided to form a Union pour la Securite en Aeroplane. This Union proposes to raise a sum of about 500,000 francs for prizes to encourage improvements to aeroplanes mainly from the point of view of adding to their safety. A sum of 25,000 francs has been voted by the Aero Club of France, and a similar amount has been promised by the Automobile Club of France.

A Long Trip in West Africa.

ON the 17th inst., a long flight was made in French West Africa by Lieut. Fecamp who, accompanied by Administrator Carl, went from Bambey to Thies, Dakar and back, a distance of about 200 kiloms.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Annual General Meeting.

The Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held on Thursday, March 21st, 1912, at 4 o'clock, at 166, Piccadilly, London, W.

Notices of motion for the Annual General Meeting must be received by the Secretary not less than twenty-one days before the meeting, and must be signed by at least five members. Thursday, February 29th, 1912, is the last day for the receipt of notices of motion.

Committee.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election.

The retiring members of the Committee are :—

Ernest C. Bucknall.	Sir Charles D. Rose, Bart., M.P.
Col. J. E. Capper, C.B., R.E.	A. Mortimer Singer.
G. B. Cockburn.	Hon. A. Stanley, M.P.
E. Manville.	R. W. Wallace, K.C.
J. T. C. Moore-Brabazon.	

Any two members of the Club can nominate a member to serve on the Committee, having previously obtained such member's consent. The name of such member so nominated, with the names of his proposer and seconder, must be sent to the Secretary in writing not less than fourteen days before the Annual General Meeting. Thursday, March 7th, is the last day for the receipt of nominations.

The following members have so far been nominated :—

*Ernest C. Bucknall.	Fred May.
*G. B. Cockburn.	*J. T. C. Moore-Brabazon.
Harry Delacombe.	Norman Clark Neill.
Capt. J. D. B. Fulton, R.F.A.	*A. Mortimer Singer.
Major F. Lindsay Lloyd.	

* The names marked with an asterisk are those of members of the present Committee.

Members are reminded that a ballot paper for the election of nine candidates to seats on the Committee of the Club will be forwarded to them at least seven days before the date of the Annual General Meeting.

Committee Meeting.

A meeting of the Committee was held on Tuesday, the 20th inst., when there were present :—Mr. R. W. Wallace, K.C., in the Chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Col. H. C. L. Holden, C.B., R.A., F.R.S., Prof. A. K. Huntington, Mr. F. K. McClean, Mr. Mervyn O'Gorman, Mr. C. F. Pollock, and Harold E. Perrin, Secretary.

Late Mr. D. Graham Gilmour.—Before proceeding with the formal Committee business, the Chairman referred to the sad accident which befell Mr. D. Graham Gilmour on the 17th inst., and it was unanimously resolved that a message of sympathy be sent to his relatives upon the heavy bereavement they had sustained.

New Members.—The following new members were elected :—Lieut. B. R. W. Beor, R.F.A., and Eliot Victor Pringle.

Aviators' Certificates.—The following Aviators' Certificates were granted :—

183. Damer Leslie Allen (Blériot monoplane, Hendon).
184. Sydney Parr (Blériot monoplane, Hendon).
185. Lieut. Bertram Richard White Beor, R.F.A. (Bristol biplane, Salisbury).

Army and Navy Aviation Prizes.
(Presented by Mr. A. Mortimer Singer.)

Army ... ... £500 Navy and Marines ... £500

On the 14th inst., Lieut. B. H. Barrington-Kennett made a further flight in the competition for the above prizes, when he covered a distance of 249 miles 840 yards, the flight being observed by Capt. J. D. B. Fulton, R.F.A., and Capt. E. B. Loraine.

The following are the leading distances so far accomplished in this competition :—

Army—249 miles 840 yards.
Navy and Marines—129 miles.

World's Record for Distance with Passenger.

Lieut. B. H. Barrington-Kennett, in competing for the Mortimer Singer Prize, on Wednesday, February 14th, 1912, accomplished a distance of 249 miles 840 yards, which constitutes a world's record. The Royal Aero Club has applied to the Federation to have this record officially recognised.

Balloon Competitions.

The following are the Balloon Competitions arranged for the current year :—

Royal Aero Club Challenge Cup	Presented by Mr. John Dunville.
Long Distance Cup	Presented by Mr. A. Mortimer Singer.
First Descent in Ireland ...	Cup presented by Mr. A. Mortimer Singer.
First Descent in Scotland ...	Cup presented by the Hon. Mrs. Assheton Harbord.

Full particulars of these competitions can be had on application to the Club.

Late Mr. D. Graham Gilmour.

The funeral of the late Mr. D. G. Gilmour took place at Mickleham Church, near Leatherhead, on Wednesday last, the 21st inst., and the Club was represented by Mr. Harold E. Perrin, the Secretary.

Among the many floral tributes was a wreath expressing the deep regret and sympathy of the members and Committee of the Royal Aero Club.

Shortly before the death of Mr. D. G. Gilmour negotiations on a friendly basis had been opened between the British and Colonial Aeroplane Co., Bristol, The Royal Aero Club and Mr. Gilmour with a full desire to put an end to litigation in a friendly spirit.

With this end in view the negotiations had been about concluded when the lamentable accident happened to Mr. Gilmour, but, happily, his wishes and the wishes of the other parties have all been brought to a satisfactory conclusion, and the action has been withdrawn.

166, Piccadilly. HAROLD E. PERRIN, Secretary.

ROYAL AERO CLUB FLYING GROUND, EASTCHURCH.

TRAVERS and the Territorial pupils, Meredith, Hedlay, and Cutler, were out on Tuesday last week. Cutler was making some very neat circuits during the day, and looks like being an excellent flyer in the near future.

Next day Lieut. Spencer Grey, R.N., arrived, thus completing the second quartette of Naval officers gazetted to Eastchurch. He has his own Blackburn monoplane.

On Thursday the atmospheric conditions were splendid for flying, and most of the aviators were busy throughout the day. Eng.-Lieut. Randell, R.N., took the opportunity to make his first *vol plané*, which he managed quite well, having the machine well in hand the whole time.

Capt. Gerrard, R.M.L.I., who was flying a good deal on Short No. 34, took up Capt. Creagh Osborne, R.N. (Director of Compasses) and Mr. Borton, who visited the aerodome about mid-day, giving them both an experience of the *vol plané* at the end of the run.

On Friday, Commander Samson, R.N., was flying the Blériot a good deal during the day, whilst Capt. Gordon, H.M.L.I., made fine flights on the Short No. 34, rising to an altitude of over 1,000 ft., where he found the air currents nice and steady, although rather puffy on the ground.

Lieut. Longmore, R.N., flew the Short tractor biplane on Saturday, with Lieut. Spencer, R.N., as a passenger. The latter was much impressed with the speed and stability of the new machine. All the aviators to-day complained of the "bumpy" atmospheric conditions which set in during the afternoon, although the day had opened very well, several of the aviators received a severe buffeting whilst flying.

Lieut. Spencer Grey's Blackburn monoplane was erected to-day, Mr. Blackburn, jnr., himself being present and working all night on the job with the usual north country love of work.

Lieut. Cockerell of the Territorials was down on Sunday and put in some excellent practice during the day. Travers was out early with Meredith and Hedley on the Short dual-control machine. Cutler also made some very good flights and now only awaits a favourable opportunity to go for his pilot's certificate.

Monday the Territorials were out early taking advantage of a fairly calm atmosphere. About 9 o'clock the wind sprang up suddenly whilst Commander Samson, R.N., was aloft on the Blériot.

FROM THE BRITISH FLYING GROUNDS.

Brighton-Shoreham Aerodrome.

DURING the early part of last week most of the machines were in the sheds for various reasons. The C.-E. biplane was having her new tractor made and fitted, the Chanter monoplane undergoing sundry minor adjustments with a view to still further increasing her efficiency, while the Blackburn was in the final stages of repair after the mishap of the 3rd.

Wednesday saw the C.-E. biplane up, England and Dowland in turn at the control. She is much improved with her new tractor. On Friday, further flights were put in, but the last landing resulted in a buckled wheel, which rendered the machine *hors de combat* for the day.

Lieut. Lawrence was on the wing again on Saturday, the Blackburn being finished. A trial flight of three miles in the morning proved so satisfactory that a trip to Brighton was arranged for the afternoon. At about 3.45, Lieut. Lawrence left the ground, and rapidly gained the height of 1,500 feet. When passing over the Front at Brighton, handbills were thrown from the machine, to be eagerly caught up as they reached the ground, it being the first time this form of advertising has been tried in the district. The trip lasted 22 minutes, and was brought to a very successful close with a graceful *vol plané*.

Brooklands Aerodrome.

ON Wednesday of last week Sippe was out early, flying about five circuits on the Green-engined Avro. The old machine is now flying much better, the engine pulling well, and the planes having a slight increase in their angle of incidence. Setti later flew some straights on the same machine, while Percival was up at about 400 ft. on his biplane. Capt. Allen on the Bristol monoplane had the misfortune to break his propeller at the conclusion of a straight flight. In the afternoon the late Graham Gilmour was flying circuits in a wind on the Martin-Handasyde, testing a new pair of planes. Machine climbed well, and appeared very steady. Percival again was out, while Sopwith was flying the Wright. Capt. Wood and Johnstone both flew straight lines on Vickers No. 3. Merriam was out on the Bristol, flying well, and Capt. Raleigh, Lieuts. Smith and Carfrae flew figures of 8. Later, Lieut. Longcroft, Capt. Raleigh, and Mr. Nesham also performed in the same way, while Lane was rolling on the monoplane.

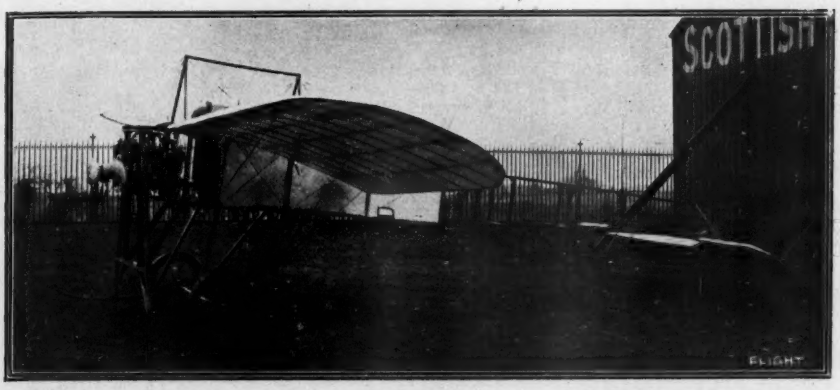
On Thursday morning the Bristol school were at work, Capt. Allen again having a minor accident on the monoplane. Making a somewhat rough landing from a straight flight, he buckled a wheel and turned completely round, but did no further damage. Capt. Raleigh accomplished two figures of 8, and Lieut. Longcroft flew two circuits in good style.

Capt. Wood made straight flights on Vickers machines Nos. 2 and 3, also Johnstone and Capt. Sykes. McDonald was out over Byfleet and flying circuits, being up for over an hour. Kemp then took out the Flanders, and flew four circuits in fine form. Machine makes a most distinctive noise—the steel bracing tapes emitting a note similar to a gigantic wasp in a tumbler. The engine itself, however, is fairly well silenced. Kemp then took Jacques as passenger, the latter holding the duplicate control-wheel. "Lark" also put in some rolling on the same machine. The wind then got up and stopped flying for the rest of the day.

On Friday, Johnstone and Capt. Sykes flew straight lines on No. 2 Vickers, the former also being out on No. 3. Kemp flew half-a-dozen circuits on the Flanders, came down and took Jaques for some straights. Gill, meanwhile, was making short flights on the Deperdussin taxi. Percival took his machine up to about 400 feet, going well, afterwards taking a pupil, Cannon, for straight flights. One of the Deperdussin taxis has been fitted with the new 45-h.p. A.B.C. for purposes of experiment. Lieut. Porte was out on this, making straight lines a few feet up. Great things are expected of this engine, the design and workmanship of which appear excellent in every way. Hunter flew some straight lines on the Humphreys' monoplane, newly fitted with Regy propeller, getting off the ground with great ease. Kemp again flew for some time on the Flanders, followed by "Lark," who did some rolling. At the Bristol School Merriam was out first, then Pizey took Capt. Raleigh up to 300 feet, finishing with a fine *vol plané*. Lieut. Smith attempted to

Mr. Damer Leslie Allen, who obtained his pilot certificate at the Blériot School at Hendon last week, is a member of the Institute of Naval Architects, of the Institute of Marine Engineers, a Fellow of the Royal Colonial Institute, and holds a Board of Trade Chief Engineer certificate.

Lieut. Walter Lawrence, of the 7th Essex Regiment, and the 50-h.p. Blackburn monoplane with which he intends shortly to cross the Channel with Mrs. Leeming, a well-known Society hostess, as passenger. He is at present at Shoreham.



Blériot type Caledonia monoplane at the Scottish Aviation Co.'s Barrhead flying grounds.

obtain his *brevet*, but unfortunately one of the camber wires broke and touched the propeller, causing it to splinter. When a new one had been fitted Capt. Raleigh also attempted for his *brevet*, but was "waved down" by his observers as the wind had arisen. This pupil also went on a voyage round the outside of the track over Byfleet at an extremely low altitude, appearing to pass through and brush against trees *en route*. Fleming was also up later, and Longcroft flew two good circuits.

Saturday was a perfect flying day, practically a dead calm prevailing. Setti, on the Avro, was out, accomplishing his first two circles. McDonald flew circuits on No. 2 Vickers, going outside the track over Byfleet. At the Deperdussin school Partridge and Gill were making short straight flights, while at the Flanders school Kemp flew circuits; then gave "Lark" and Jaques straight flights and instruction in landing.

After a couple of preliminary circuits poor Gilmour started off on his fateful journey, flying at about 500 ft., and almost immediately afterwards Cody arrived from Farnborough with two passengers. The news then came through of Gilmour's terrible accident, and was received at first almost with incredulity, but as confirmation followed a deep gloom settled on the whole place, and by mutual consent all flying ceased for the day. His loss is deeply mourned here by one and all, both by his numerous actual friends, and also by those who have witnessed some of his greatest exploits, many of which have taken place at Brooklands. There is, however, a considerable amount of strong feeling with regard to the way in which certain persons have taken it upon themselves to state in the daily press that Gilmour was always considered to be a reckless and dare-devil flyer. This is a great injustice to one who was one of England's finest flyers, as the care with which he used to examine every machine before he flew it was well known. He certainly was daring, but to class him with the type of man who indulges in dangerous tricks without appreciating the risk he is taking—this is most unjust, a fact which should be obvious to anyone who has seen anything of aviation.

On Sunday, Kemp took the Flanders out and flew several circuits. W. O. Manning then appropriated the machine, putting in some rolling practice and making several short flights a few feet from the ground. Spencer and Percival were both out flying for some time. Sopwith indulged in work on the Wright, followed by Cody, who performed some really alarming evolutions. Making his enormous machine turn in a very small circle, he charged at the row of sheds nearest the track. Elevating quickly, he missed the flagstaff on one of them by inches, and continued in this fashion for several minutes. He came down all right eventually, and, taking Flanders and "Partridge" as passengers, started off for Farnborough. Surprise was shown at both passengers sitting on the same side of the machine, but apparently it was in order to counteract the propeller torque. Monday and Tuesday were both unfit for flying, owing to the high wind and rain.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—Mr. Biard was out early on Wednesday last week on biplane No. 3, making straights with good landings and afterwards completing three circuits in a gusty wind. Mr. Lewis Turner was also making circuits and Mr. Raphaite rolling.

Climatic conditions were unfavourable next two days, theoretical work only being possible.

Weather much improved on Saturday, and pupils were present in full force, putting in a good day's work. Mr. Lewis Turner, out early making test flight on biplane No. 1, found engine running badly, so turned it over to engineers for overhauling, and had biplane No. 3 brought out, Mr. Biard taking the pilot's seat and making several good flights during the morning and afternoon. Mr. Ramsay was practising rolling on monoplane No. 4, and Mr. Gates and Mr. Fowler were perfecting their straights.

A.S.L. Flying School.—After long absence, Lieut. Hawker was able to get in a good afternoon's practice on Saturday last. He flew the school Valkyrie exceedingly well, accomplishing flights the whole length of the aerodrome, showing ever-increasing confidence in control.

Blériot School.—Monday last week was windy and foggy, pupils being unable to put in outside work. Next day the weather was much calmer, and all were able to put in a good spell of hard work. In the afternoon Mr. Parr passed his tests for the Royal Aero Club's certificate at the first attempt, after having made a trial flight on the *brevet* machine. His landings *en vol plané* at the conclusion of each half being particularly well judged. Mr. Allen, who has made very rapid progress during his sojourn at the school, then went aloft, and finished the second half of his tests, after having been weather-bound for six weeks, this being the period which has elapsed since he successfully completed his initial flight last December. He was flying the machine in excellent style, driving the 30-h.p. Anzani as though it had been a 50-h.p. Gnome. Mr. Prenssiel soon after took out the same machine, and put in several circuits in his usual style. He is going for his ticket, if the weather is favourable, next week. Mr. Pothet was meanwhile putting in good practice at straight lines, and is coming on well.

Mr. Prenssiel, on Wednesday, was out early with circuits, Messrs. Pothet and Hall taking it in turns to do straights on their respective machines, and are doing well, although Mr. Hall was troubled somewhat by the wind, which would insist in blowing him off his course into the rough ground. At about 4.30 in the afternoon, the weather being practically still, M. Desoutter made the first attempt for his *brevet*, which, after a preliminary "canter," he managed in perfect style, his landing *en vol plané* being so well planned that the monoplane came to rest within a few feet of the judges.

During the solitary half-hour of calm weather on Thursday, Messrs. Pothet and Morris each managed to steal sufficient time to put in a little straight-line practice at full speed, tail well up.

The weather being too unpropitious next day for any outside work, the pupils devoted themselves to "inside-the-sheds" work only.

About 10 o'clock on Saturday, the wind abating somewhat, M. Salmet thought it possible to put in some active instruction and the

The crank-shaft of the new 6-cyl. N.E.C. aerial engine.—Although it has been designed to transmit 60-h.p. at 1,250 revolutions, it weighs only 9 lbs., and constitutes a sample of workmanship of which only such firms as the New Engine Co. are capable. In our photograph it is seen supported by a man's little finger. The engine, when completed, will be used in the forthcoming War Office competition.

school machines were brought out, but the wind still proved too strong, so that all had to return to the hangars until about 3.30 in the afternoon when Messrs. Pothet and Morris confined themselves to straights, during which time Mr. Prenssiel flew circuits. In the early evening M. Desoutter concluded his certificate tests and landing beautifully with a well calculated descent, with the engine cut off, finished his trials just as dusk was falling, making the third pupil at the Blériot school to obtain his *brevet* during the week.

W. H. Ewen School.—Notwithstanding the changeable weather, the pupils at the school during the past week have put in an exceptional amount of flying practice, while between times they have been busy in the hangar assisting in tuning up and constructional work. Although there was some wind on Wednesday, Baumann, Warren and Dubois were out adding to their air experience, the latter making an exceedingly steady flight. There was not much flying on Thursday and Friday at the school, but a big day's work was put in on Saturday. Although his practice is confined to week-ends, Mr. E. H. Lawford is showing steady progress. Baumann and Dubois, each always trying to surpass the other, were making several splendid flights at a regular height of 30 feet. Mr. Denys Ware, a new pupil joined the school and had his first lesson. W. T. Warren, who is now quite ready for his *brevet*, finished the school work for the day by flying the Blériot back to the hangar. In the morning, Ewen made several sensational flights with the 28 "Dep." Several times flying right out of sight of the aerodrome, he had at one time a very exciting experience while passing over the railway bank at 400 feet. While doing a banked turn, he got a rather sudden gust to counteract which he was forced to dive fully 200 feet. The weather was again fine on Sunday for school work, and the W. H. Ewen pupils got in another busy day with the ground to themselves. Lawford managed several good straights, while Dubois and Baumann were showing every confidence in their turns, and in another few days of good weather they should be well on the way for their *brevets*.

Salisbury Plain.

Air Battalion.—Although the weather was very dull on Wednesday of last week, Lieut. Barrington-Kennett had his Nieuport monoplane brought out and after three flights to test the engine took Corporal Ridd, R.E. on board and started off for a second attempt for the Mortimer Singer prize as briefly recorded in our last issue. He was flying for 4 hrs. 51 mins. and covered a distance of 249 miles 840 yards at a height of 250 feet. This distance, however, does not include the flying from Salisbury Plain to the course so that the flight completely puts into the shade his previous essay of 111 miles, and is a world's passenger record. In the afternoon the weather changed and no further flying was seen. Thursday was another blank day the weather being very wretched and work in consequence was confined to the hangars. A similar state of affairs ruled on Friday but there was a welcome change on Saturday when Capt. Fulton was flying in fine style and Captain Loraine made some splendid right and left-hand turns. Lieuts. Conner, Barrington-Kennett and Hynes were also seen in the air. Sunday was again fine and Lieut. Barrington-Kennett made a couple of half-hour flights in the early morning on his Nieuport. Capt. Loraine was also out early and Lieut. Hynes was flying the Breguet while Lieut. Reynolds took Corporal Vagg, R.E., for a trip round the Plains. On Monday and Tuesday wind and rain again confined work to the hangars.

Bristol School.—We were treated to a fine day's flying on Monday, last week. Mr. Hotchkiss was out early testing the conditions, after which he took Lieut. Harrison for his last passenger flight, the pupil taking charge of the controls, afterwards making his first solo in the shape of two straight flights on machine No. 73. He then ascended on machine No. 66, and performed in really creditable style. Mr. Bendall was out for two solos, making complete circuits with fine banking. Hotchkiss ascended with Commander Schwann as passenger, and started off for a short cross-country flight, eventually arriving back at the hangars after having been in the air for just over half-an-hour. Heavy rain rendered further outdoor work impossible.

Tuesday proved to be a perfect soaker, and all thought of flying had to be abandoned.

In direct contrast to the weather of the previous day was Wednesday morning, and Hotchkiss was up for an early trial on No. 66, Jullerot also being out on No. 43. Later Hotchkiss took up a new machine that had just been received from the works at Filton. He found her to be in absolutely perfect order, answering to her control splendidly, and making a really fine flight; but, after having circled round, an eye-bolt burst, and the wire getting into the way of the propeller smashed same, but Hotchkiss was able to come to earth easily without any further damage being done. Commander Schwann was taken for a passenger flight by Mr. Jullerot on No. 66, after which Jullerot went up alone on one of the Anzani monoplanes, quickly reaching a height of just over 600 feet, which he maintained whilst making a wide circuit, landing after being in the air for just on a quarter of an hour. Lieut. Brodigan made three consecutive solo flights on No. 43, and the rapid progress which this pupil has made in the short time he has been at the school is indeed very creditable to Jullerot and his staff. Lieut. Harrison in the four solo flights he made also gave practical evidence of the progress which he has made. Jullerot took Commander Schwann for two tuition flights on No. 66, in the second the instructor letting his pupil place his hand upon the controls. Hotchkiss gained applause all the way round for a flight on one of the Bristol school monoplanes. He started off and quickly rose to a height of 1,000 ft., and whilst at this height he rolled the machine in a most daring manner, and also made some very sharp right and left-hand turns, finishing up with a *vol plané* with engine completely cut off. Lieut. Wyness Stuart, who has already gained his certificate at the Bristol School for the biplane, and has now returned for a course on the monoplane, made a good solo on No. 43, and Lieut. Harrison and Mr. Bendall each made solo flights, Commander Schwann being passenger in each case. Lieut. Bear then passed the second part of the tests for his *brevet* in fine style, being observed by Lieut. Stuart.

An exceedingly useful and instructive day's work was brought to a conclusion by Jullerot flying with a passenger on one of the Bristol two-seater monoplanes for fully twenty minutes, and after a fine flight, made a perfect landing in a most graceful manner.

On Thursday rain fell incessantly the whole of the day, and outdoor work was therefore impossible.

Friday saw very little improvement, if any, in the weather of the previous day, and work, therefore, had to be proceeded with in the hangars.

Saturday's spring-like morning brought the "birds" out early, and after Jullerot had ascended, school work was very brisk, flights being made by Lieut. Brodigan and Lieut. Harrison, and these pupils, given a favourable opportunity, should very shortly gain their certificates. Lieut. Wyness Stuart was out, as also was Mr. Bendall for solos. Capt. Gilbert, who was flying a Bristol monoplane for the second time, met with an unfortunate accident, sustaining serious injuries to himself, and considerably damaging the machine. When he regained consciousness after the smash, he told Col. Bagnine, of the Italian Embassy, that whilst at a height of 300 ft. he attempted a very sharp right-hand turn, and then pushed the lever far over to right his machine, after which he says he cannot remember anything, having become seized with giddiness. The machine planed steeply down towards earth at a great pace, the unfortunate aviator having his engine running full. In further conversation he states that the Bristol monoplane was in perfect order. Great hopes are held out of the Captain's speedy recovery, who, it may be added is an enthusiastic aviator, and a man of proved ability.

A glorious Sunday morning brought the Bristol staff out at an early hour, Jullerot being first away, Lieut. Bower following shortly afterwards for a solo on one of the school two-seaters. Prier made a good flight on a double-seater, handing the machine over to the Air Battalion on the completion of same. He was also up testing another two-seater, which he found to be working perfectly.

At 10.30 work was again resumed, and Lieut. Bowers was quickly away with a passenger on one of the school two-seaters, but was not able to get up to any height owing to a faulty propeller, and had another fitted.

In the afternoon the weather was very gusty, and Jullerot found that the eddies were very strong. At 4.30, however, the conditions were found to have improved somewhat, and Lieut. Wyness Stuart started off and carried out a fine solo flight. Lieut. Head then passed the necessary tests for the second part of his certificate in a creditable manner, being observed by Col. Smeaton, and this brought the day's work to a conclusion.

Developments in Scotland.

THE programme of the Scottish Aviation Company indicates that Scotland is going to make a strong bid for a share of the flying industry. The Company make a speciality of tuition, until the R.Ae.C. *brevet* is obtained on monoplanes and biplanes, at a charge including insurance against breakages. For £275 they also offer a Caledonia monoplane with 28-32-h.p. engine, and will teach the purchaser to operate it. Incidentally, they are offering a prize of £5 for a half-an-hour's flight by a pupil. The Company is also turning out the Caledonia-Avro biplane, under license, which with 30-h.p. engine, is listed at £500, including tuition. The Company has special facilities for building machines, and guarantees to demonstrate them in flight before delivery, if necessary. Only the highest class workmanship will be utilised, while every attention is given to detail, and it is claimed that the finished work is as good as anything turned out in Great Britain.

FOREIGN AVIATION NEWS.

Another Prize for Human Flight.

WHEN the Peugeot 10,000 franc prize for a ten-metre flight by a man without using mechanical power has been won, the *homme oiseau* will find another prize awaiting him, as a French contemporary, *La Justice*, has offered a sum of 100,000 francs for the aviator who by his own power flies from Paris to Versailles and back without landing. We are prepared to risk saying that this is indeed looking ahead.

Seventy-nine Entries for Peugeot Prize.

IF entries go for anything there should be no lack of competitors for the prize of 10,000 francs, as up to Tuesday last 79, who feel confident of being able to fly ten metres by their own power, had already sent in their names. Among the entrants may be noted Colliex, Reyrol, Cayla, Gabriel Voisin, Dupont, &c.

A New Sight for Bomb Droppers.

THE well-known scientific instrument firm Zeiss, of Gena, have patented an instrument by the aid of which, it is claimed, bombs may be dropped from aeroplanes or dirigibles with accuracy. It is arranged somewhat in the manner of an inverted theodolite, and with the aid of a chronometer, to time the machine, it is stated to be comparatively simple to direct the bomb-dropping tube so that the projectile will find its billet.

The German North-West Circuit.

THE German circuit, which it is proposed to hold in North-West Germany, from June 2nd to 15th, will touch at the following towns: Osnabruck, Munster, Oldenburg, Bremen, Hanover, Brunswick, Lubeck, and Hamburg. The daily stages will be between 150 and 200 kilometres. Prizes to the value of 80,000 marks will be distributed, and the machine placed first and second will be bought by the German War Office at a price of 25,000 marks each.

A Voisin Canard for Russia.

ON the 15th inst., a party of Russian gentlemen witnessed a number of tests on and over the Seine with a Voisin Canard, Maurice Colliex being at the wheel. Starting from Issy the machine was brought down on the Seine, just by the new Issy bridge, and then taking the direction of Auteuil it rose gradually, and, turning, went off in the direction of St. Cloud. Coming back it turned the Sevres Bridge, and passing over the Peupliers Bridge, came down in front of the Voisin Works, at Billancourt.

French Naval Aeroplanes.

THE Voisin hydro-aeroplane has now been taken delivery of by the French Naval Authorities, and very shortly work will be commenced with it by Lieut. Cayla and Commandant Davuley, on board the old warship "Foudre" at Salins d'Hyeres.

Long Flights by Gordon Bell.

ON Monday, at Buc, Gordon Bell was flying on one of the European Circuit-type R.E.P. machines for forty minutes, and then changing over to another one, fitted with one of the new 7-cylinder motors, he was flying on it for an hour. Afterwards he took Luzzato, an Italian aviator, for a trip on the machine. On the 13th inst., he was flying for an hour at a height of 800 metres, and afterwards made two cross-country trips, one over Villacoublay to Issy, returning *via* St. Cyr; and the other above Rambouillet. On the same day Amerigo was flying for three-quarters of an hour, at an altitude mostly in the neighbourhood of 1,000 metres.

A Three-Hour Flight at Pau.

ON Monday at the Blériot Military School at Pau, Lieut. Brule made a non-stop flight of three hours by way of qualifying for a superior certificate, and on the previous day Sergeant-Major Didier was flying for over an hour. An hour's flight was also put up by Lieut. Sevelle at the same school on the 13th inst.

120 Passengers in Two Days.

SOMETHING of a record has been achieved by Lieuts. Battini, Cheutin, Varcin, Leclercq, Goville, and Marzac at St. Cyr. On the 15th inst., 45 officers and 15 cadets from the Superior Military School visited the aerodrome, and each was taken for a trip by one or other of the above-named officers, and on the following day a similar number of officers were received, and again each were given an aerial experience. Thus 120 passenger flights were made in two days without the slightest accident.

Laurens Wins a Cup.

SEVERAL fine flights were made on the 15th inst. at Nice by Laurens on his Deperdussin monoplane, in most of which he was accompanied by passengers. In one flight he was over the sea at a height of 500 metres, in another, with a lady passenger, he flew over the Battle of Flowers, while another passenger was the jockey Tod Sloan. During the afternoon he won the Coupe Weber. On the following day he won another cup, while among his passengers was the American boxer, Kid MacCoy.

A view of Bombay, showing Victoria Station and the Post Office, as seen from Spencer Brothers' captive passenger balloon, which was in active operation during December and January last in connection with the Bombay Exhibition. The balloon was in the charge of Mr. Henry Spencer, who has just returned from India.

Long Flight on Clement-Bayard.

ON the 15th inst., at Compiegne, Guinard on his Clement-Bayard aeroplane was flying for an hour and ten minutes, during which time he circled round the Cathedral. In the evening he made several very good flights with passengers.

Doings at Caudron School.

ON Sunday afternoon Rene Caudron was flying over the Somme Bay and also Crotoy with M. Ternois, Deputy for the Somme Division. On the 15th inst. he made a cross-country flight with Sapper de Mugeot and Madame Peralda, travelling to the Fort Mahon and back in fine style. During the same day Lieut. Peralda was flying for an hour on a Caudron biplane.

A Tellier at St. Omer.

AT the Bruyeres Aerodrome at St. Omer, on the 15th inst., Marc Poupet was flying in his Chenu-engined Tellier for over an hour, during which time he passed over the town.

First French Superior Sapper Pilot.

THE first non-commissioned officer in the French Army to obtain a superior certificate is Sapper Letort, who made his last qualifying flight on the 16th inst., over a course from Villesauvage to Beaugency and back, a distance of 150 kilometres. The test was made on a Blériot-Gnome monoplane, which kept at a fairly constant elevation of 1,200 metres.

Paulhan on the Curtiss Triad.

WITH Paulhan at the wheel, the Curtiss hydro-aeroplane flew from Juan les Pins to Cannes and back on the 17th inst., and during the 40 mins. flight it manœuvred above the torpedo flotilla. A second trip to Cannes was made by Paulhan with his mechanician as passenger, this time only 20 mins. being taken. In a third trip the passenger was a lady. On the previous day Robinson had piloted the machine over to Cannes, and landed in the harbour, afterwards returning to Nice.

Fast Flight on the Paulhan-Tatin Torpedo.

TESTING the Paulhan-Tatin torpedo at Rheims on the 17th inst., Chambenois, who had only made one previous flight upon it, covered 10 kiloms. in a closed circuit at a height of 150 metres at a speed of 140 kiloms. an hour. This was not officially timed however. On the following day he flew 12 kiloms. at a speed which was said to be 150 kiloms. an hour.

Bielovucic Flies Three Hours on a Deperdussin.

STARTING from the Betheny flying ground, near Rheims, Bielovucic was flying for 3 hours 10 mins. on a Deperdussin monoplane on the 17th inst. During his trip he passed over Chalons and several other towns in the neighbourhood at a height of 1,400 metres.

Bomb Dropping at Bouy.

THE French military aviator, Bosquet, who is giving special attention to the subject of bomb dropping, was making some further experiments at Bouy, on the 17 inst. Of fifteen projectiles dropped from a height of 600 metres, nine landed on places indicated by the aviator before he went up.

At the Farman Military School at Chalons.

TWO new Farman aeroplanes of the headless type were taken over to the Military Aerodrome at Rhiems, on the 17th inst., by Lieut. Menard and Seguin. Later, Sapper Seguin, who is a brother of the inventor of the Gnome motor, made his last test for the Military aviator's certificate. Ensign Fournie reconnoitred the landing grounds in the neighbourhood of Vesey, while Lieut. Cammermann and Vigne made an aerial inspection of the forts round about Rhiems.

Flying from Pau to Barcelona.

ON the 15th inst., Brindejonc des Moulinais left Pau on his Morane aeroplane intending to make a non-stop flight to Perpignan, but was compelled to come down at Chalabre after an hour and a-half's flying. On the following day he made three flights above the town and then went on to Narbonne where he stopped for the night. He arrived at Perpignan on the 17th inst., and intended to go on to Barcelona the following afternoon. Then, however, the windy weather compelled him to delay his departure, although he managed to make one or two trial flights.

A Savary Superior Pilot.

AT Chartres, on Sunday, Reichert, who is in charge of the Savary School, made two flights each of an hour and a-half duration by way of qualifying for his superior certificate. Each time he was accompanied by a passenger.

An Astra Biplane Over Paris.

ON Sunday afternoon quite a number of trips were made over Paris by Labouret on an Astra military-type biplane. Each time two passengers were taken, these including, in pairs, Mdlle. Marie Tissot and Lieut. Girauld, Mdlle. Jeanne Tissot and Lieut. Couret, Lieut. Passin and M. de Tanley, and Lieut. Thomas and Rabot.

At the Pau Deperdussin School.

ON Sunday afternoon Lieut. Rochet was flying for forty minutes at a height of 300 metres, and Lieut. Janserod was up for an hour at a height of 1,000 metres.

Pau to Biarritz and Back.

ON Saturday last, Lieut. Ducourneau on a Gnome-engined Blériot, and Lieut. Malherbe on a similar machine, flew from Pau to Biarritz, the journey in the case of the former taking an hour and ten minutes. Later, in the afternoon, Lieut. Ducourneau flew back again to Pau.

Four on a Borel Monoplane.

ON Sunday, Captain Destouches paid a visit to the Borel headquarters, at La Vidamee, and after a flight of twenty minutes with Verrept, which was ended by a splendid *vol plané*, from a height of 1,000 metres, he witnessed a splendid demonstration by the same pilot. Taking Lieuts. Abrantes and Sensal, and another aviator, Voight, together with sufficient petrol and oil for three hours, the whole representing a load of 350 kilogs, Verrept got the machine away easily, and rapidly rose to a height of 200 metres.

Another Fatality at Johannisthal.

WHILE a pupil of Gorrissen named Schmidt was making a spiral descent at Johannisthal on the 15th inst., his machine was apparently caught by the wind and side slipped. It fell from a height of 800 metres and the pilot sustained such severe injuries that he died on the following day.

Passenger Carrying in Germany.

A NOTE from Germany states that on the 18th inst. at Munich, Rendzel made a flight of 9 mins. 8 secs carrying five persons on his biplane, a record for Germany. On Tuesday he carried a similar load for 21 mins. 45 secs.

Military Flying in Germany.

HAVING received instructions to take some military orders to the Fusilier Regiment at Brandenburg and return to Doeberitz Camp without landing, upon the same lines as reported last week, Lieuts. Manhke and Solmitz successfully carried out the task, but when coming down at Doeberitz, the motor suddenly stopped and the machine pancaked down, fortunately without doing much damage. While the two officers were away, Lieuts. Abramowitsch and Hartwig flew over to Johannisthal, making the journey in 36 minutes.

Another view of Bombay from the Spencer captive balloon, showing the Indian Ocean and Colaba Point.

A High Flight at Johannisthal.

USING his aeroplane fitted with his automatic stability apparatus, Fokker was on Monday flying at a height of 2,195 metres at Johannisthal.

A Belgian Military Biplane.

ON the 17th inst., at the Kiewit Aerodrome, Lanser was testing a military biplane which has been entirely constructed in Belgium, and fitted with a 40-h.p. valveless engine. He afterwards made a flight, with a passenger, to Genck and back. The same day Paul Hanciau, on a Belgian-built Deperdussin, flew from Genck to Kiewit and back, *via* Hasselt, at a height of 1,500 metres.

More Misfortune for Obre and Duval.

ILL luck still persistently pursues the aviators Obre and Duval in Tunis. After waiting for some time to enable them to make a cross-country flight from Bizerta to Sousse, being detained through wind and rain, the hangar in which their machines were housed was blown down on the 15th inst. The fuselages of the machines were damaged somewhat, although fortunately the planes and motors escaped injury, so that repairs will not take long.

A Death at San Francisco.

WHILE piloting Glenn Martin's Curtiss biplane, with the owner as a passenger, H. Hoff, at San Francisco, made a sudden dive, on the 19th inst., and sustained such injuries that he died almost at once. Glenn Martin escaped with serious injuries.

Tabuteau Still After Records.

TABUTEAU is assiduously practising at Pau on the Morane-Saulnier monoplane with a view to recapturing records. On the 16th inst. he made a flight of 400 kiloms., the first ten of which were covered in 5 mins. 1⅘ secs. On the following day he tried again, but was brought down after 60 kiloms. by a faulty sparking-plug. In the second attempt he covered 100 kiloms. in 50 mins. 32 secs., and 150 kiloms. in 1h. 15m. 49s., representing a speed of slightly over 118 kiloms. an hour. On Monday he made a flight of 40 kiloms.

AIRSHIP NEWS.

"Capitaine Ferber" Completes its Trials.

THE Zodiac dirigible, "Capitaine Ferber," made its last trial, preparatory to being taken over by the French Military authorities, on the 16th inst., when, during six hours, it covered a circuit of about 280 kiloms. north-east and south-east of Paris. Piloted by Count de la Vaulx during the trip it was kept at a height of over 1,400 metres and carried six persons on board.

A Big Party on "Adjudant Reau."

ON the 15th inst., the "Adjudant Reau" made a long trip over St. Germain and Versailles, from its headquarters at Issy. In the afternoon it was up again with eighteen passengers on board including General Maunoury, Governor of Paris, Commaadant Richard, and Captains Do, Michaud, Marconnet, and Pacton.

"Parseval XI" Repaired.

HAVING had the damage, sustained through a collision with the rifle butts at Tegel, repaired, the "Parseval XI" made her re-appearance on the 16th inst., and a short trip was made for adjusting the various controls, &c., and tuning up the dirigible in view of her official trials.

On Tuesday the new military Parseval dirigible voyaged from Berlin to Cologne and back, taking sixteen hours for the double journey.

The New Zeppelin Cruiser.

SPEED trials were carried out at Friedrichshafen on Saturday last with the new Zeppelin cruiser "Zeppelin XII" or "Victoria Louise" as she is now called and it is reported that the speed obtained was 72·72 kiloms. an hour (45 miles an hour). The "Schwaben" was also tested for speed and got up to 70·56 (just under 44 miles per hour).

A Dirigible at Tripoli.

A FIRST ascent was made by the dirigible "P.I." from Tripoli, on February 14th, and as on the previous day a supply of 20,000 aerial bombs had arrived it was intended to set her to work at once to distribute some of these among the enemy.

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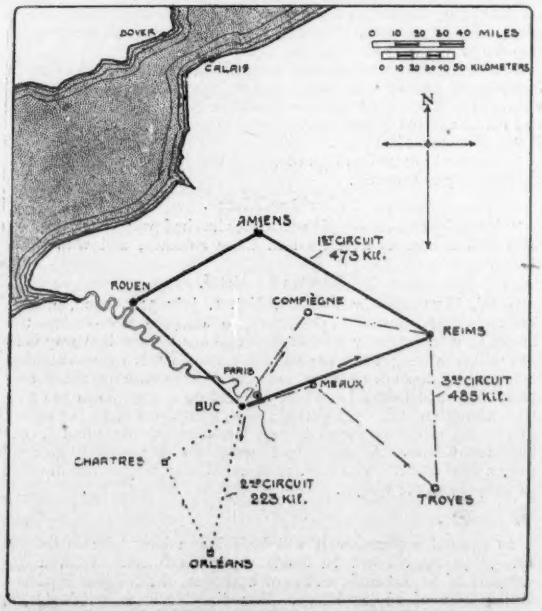
INTERNATIONAL MICHELIN CUP FOR 1912.

THE rules governing the International Michelin Cup for the 1912 competition have just been published by the Aero Club of France, and the winner will be the aviator who covers the greatest number of kilometres on a course made up of three different Circuits, at an average speed throughout of 40 k.p.h. Each National Aero Club must fix its course and submit it to the Aero Club of France. For France the course decided upon is as shown in the accompanying sketch map, the headquarters being at Buc. Each of the three circuits making up the course must start from the same point, and the first and third, each of about 500 kiloms. round, must each have three or four obligatory landing-places, while the second circuit, of 255 kiloms. round, must have one or two landing places. The starting line will be the same for all three circuits. At each of the intermediate landing places the competitor must land in a square of which the sides are not more than 500 metres long. Replenishments may only be made at the starting point, and, while covering each circuit, the competing machine must average at least 60 kiloms. an hour. Each circuit will be numbered 1, 2, or 3, and they must be covered in their proper order. It will not be permissible to cover the same circuit twice in succession. Should a competitor land elsewhere than at the proper stopping-places, he will have to start that circuit again. Before starting, each competing machine will have certain parts sealed, and will also have to carry a sealed barograph. For each 75 kilogs. of useful load carried beyond the pilot and necessary fuel, &c., a bonus of 25 per cent. will be allowed on the time up to the maximum of 100 per cent. This extra load may be made up of passengers or ballast. If the latter it will be weighed and sealed at the start and weighed at each intermediate stopping-place. Pilots of machines must possess a pilot certificate under F.A.I. rules. Each national club must arrange six periods of five days each in the year on which attempts may be made, and each date must be indicated at least a month in advance. The last period of five days must terminate before October 1st, 1912. If a pilot aviator makes several attempts for the prize, only the best one will be considered in the classing. Should there be a tie in the classifications for the Cup, the length of each circuit covered will be multiplied by the extra weight carried and the results added together, the Cup going to the competitor with the best record.

Should there still be a tie the winner will be the one whose average speed over the whole distance is best. Before the start the cylinders of the motor, the propellers, the wings, rudders, elevators and ailerons will be stamped or sealed by the official observers. Any supplementary regulations made by the National Clubs for attempts on the prize outside France must be submitted to the Aero Club of France for approval.



MICHELIN INTERNATIONAL AVIATION CUP, 1912.—The triple course selected for the French trials.

Conducted by V. E. JOHNSON, M.A.

First Official Records.

THE Kite and Model Aeroplane Association held its first series of observed flights for model records of duration and distance on Wimbledon Common on Saturday last, the official results of which are recorded in another column.

The proceedings attracted a large crowd of keenly interested spectators who appeared to find them vastly more diverting than some football matches which were being played in the immediate neighbourhood.

The number of records entered for was eleven, but from a variety of unfortunate causes—due partly to the well meant but somewhat disastrous kindness of some of the spectators—only six were able to be completed. One conclusion that we are afraid must be drawn from Saturday's experience is the absolute impossibility of successfully carrying out any such series of records on a public ground on a Saturday afternoon. These remarks apply, of course, more especially to distance records. Duration records for hand-launched models could probably be so held.

In many respects the day was an ideal one, the highest wind velocity recorded by the anemometers (of which two were used) being 6·3 m.p.h.; the lowest (just at the close of the proceedings), 1·5 m.p.h. The mean average velocity (corrected) was 3·95 m.p.h., *i.e.*, approx. 4 m.p.h. But, as is well known to aeromodellists, such an absence of wind is not at all an ideal state of atmospherical conditions for the establishment of distance records of the usual type. Many aeromodellists will, no doubt, think the distance record of a somewhat mediocre character. To which, all that we have to reply is, then come along and prove that *under the same conditions* you can beat it. Generally speaking, the flights improved during the afternoon, as the machines got more tuned up to the prevalent conditions of the atmosphere. A general increase of motor power was, we believe, found necessary. Mr. Fairey's duration flight of 60·4 secs. was, under the circumstances, really a very fine performance, the steadiness and stability exhibited by the machine being most marked. Mr. Mann's best flight was his last, for distance —flown almost in calm air—the wind velocity at the time being only one and a-half miles an hour. It was undoubtedly one of the best flights of the afternoon, and one of the very few which exhibited any marked directional control.

Mr. Rowlands, after making an excellent straight trial flight, had the misfortune to break his machine in two, and was thus unable to complete a single test. Better luck next time. Mr. Davis, finding his machine under-powered, very wisely, no doubt, decided not to fly. Mr. Grimmer's model, which was far more heavily loaded per unit surface than the others, appeared unsuited to the prevalent local atmospherical conditions, or else not sufficiently tuned up for the occasion. In any case he was unable to get it well away. The following particulars with respect to Messrs. C. R. Fairey's and R. F. Mann's machines will, we are sure, prove interesting to readers of FLIGHT.

Fairey Monoplane.—Twin-propeller monoplane. A-type, wood frame; special shaped aerofoil to ensure stability, non-lifting tail, compound increasing pitch propellers, 9 ins. diameter. Main plane 116 sq. in., tail 16 sq. in., total 132 sq. ins. Rubber driven—two skeins of approximately ½ oz. each, consisting of eight strands of ⅛ in. strip rubber 34 ins. long; framework wood; covering pegamoid; total weight 4 ozs.

Mann Monoplane.—Loaded elevator twin-screw monoplane, Mann type. Area of all horizontal surfaces 95 sq. ins.; material used in framework, silver spruce; nature of fabric, proofed silk; propellers 10 ins. diameter. Rubber driven, ¼ in. by $\frac{1}{16}$ in. strip rubber, 14 strands per side, each strand 32 ins. long, weight of both strands, 1½ ozs.; total weight of model, 5 ozs.

The reader must understand that the weight of the rubber is only approximate, and that he must bear this in mind in applying the formula

$$\text{Efficiency} = \frac{\textit{weight of machine} \times \textit{time of flight}}{\text{area of planes} \times \text{weight of rubber}}$$

or the formula

$$\text{Efficiency} = \frac{\textit{weight of machine} \times \textit{distance}}{\text{weight of rubber}}$$

The latter of which supposes the *true* distance known wind velocity for or against being accurately allowed for, which can be done *when* the model makes a *straight* flight, but when it circles, as does actually happen in the majority of cases, in spite of what some are so eager to protest to the contrary, then the problem becomes an extremely complicated one, as the writer knows to his cost.

Of the two formulæ we prefer the latter, always supposing we do actually know the *true* distance.

A New German Steel Dirigible.

A NOTE from Berlin states that a new dirigible, into the construction of which steel will largely enter, will shortly be built at Kiel. It will measure 150 metres long, 22 metres high, and 16 metres wide.

In general appearance it will look like a long tube as the car for 50 passengers will be inside the main frame. With a gas capacity of 24,000 cubic metres of hydrogen, the designer expects a lifting force of 26,400 kilogs. The dirigible is to weigh 19,764 kilogs, and will be driven by five 100-h.p. motors.

Model Competitions in France.

As the time is now fast approaching when the secretaries and committees of model clubs will be arranging their programmes for the coming season, we feel sure the following particulars of the rules and regulations as drawn up by the *Aviatic Club de France* will be of interest to them.

1. The competitions embrace two divisions (A) *modèles d'étude*, *i.e.*, models actually constructed by the competitors; (B) *modèles commerciaux*, *i.e.*, for those who use bought models.

2. In the case of constructed models each is subjected to two tests: (1) distance; (2) a gliding test with motor stopped.

3. For distance four trials are permitted; two for a flight in a straight line, one for a flight over an obstacle placed at a certain height, one for a flight "*avec virage*" (with a turning). Distances measured in a straight line.

4. In the case of prizes offered for scale models and workmanship, such models must prove themselves capable of actual flight.

5. There is a consolation prize, in which the non-winners are given another chance.

6. In the case of commercial or bought models, any are accepted, but one trial alone is permitted for distance.

7. The minimum span in the case of *modèles d'étude* is 1 metre (39·37 inches), *and they must be able to leave the ground under their own power without any push.*

The remaining rules being practically akin to those in force here need not be stated.

Referring to Rule 7, we most earnestly hope that in every model competition held on this side of the channel during the coming season every one will be under a similar rule, *i.e.*, for *self-rising* or *self-launching* models, save only in the case of juveniles, and that—when good prizes are offered—the minimum weight will be *at least* 6 to 8 ozs.

In addition to this we consider the gliding test to be of primary importance, and that in every case the *efficiency* of the model as exemplified in accepted formulæ should be given its proper weight, and marks allotted accordingly. Unless these are carried out, where is our advance on last year?

Surely we have had enough of things which may be machines but are certainly not models.

Turbine Motor.

"AVON" writes, asking if any reader has had practical experience with this motor, as advertised in these columns, and with what result?

Replies in Brief.

S. W. WYATT.—*See* FLIGHT, Vol. I, July 31st, 1909, p. 454. We always advise wood in preference to umbrella ribs—unless the model is, comparatively speaking, a large one. Your best way is to test a given length on the balance; also in this case something undoubtedly depends on your respective experience in the use of each. The model should certainly rise and fly at least 60 to 100 yds. with a length of 4 ft. Re-geared motor, two-power units, not more; this would probably increase your distance off the ground, but lengthen the run. A non-geared motor would probably give as good a final result. You must build as skilfully as possible in order to keep down the weight.

THE KITE AND MODEL AEROPLANE ASSOCIATION.

(27, VICTORY ROAD, WIMBLEDON.)

The Paramount Body to Govern Models in this Country.

OFFICIAL NOTICES.

ON Saturday, February 17th, the official observers attended Wimbledon Common for the purpose of observing flights for distance and duration of those who wished to have their flights observed for registration for the purpose of establishing records.

The entries received for distance, hand-launched, were from Messrs. C. R. Fairey, R. P. Grimmer, R. F. Mann, and G. Rowlands. The official results being: R. F. Mann, 320 yards; C. R. Fairey, 230 yards; R. P. Grimmer, 157 yards. For duration the same gentlemen had entered, the results being: C. R. Fairey, 60·4 seconds; R. F. Mann, 43 seconds; R. P. Grimmer, 34·8 seconds.

Mr. G. Rowlands smashed his model in the first flight, and Mr. Weston was unable to attend. Mr. C. R. Fairey put up a most creditable unofficial flight, covering about 400 yards. The observers were Messrs. T. W. K. Clarke, F.A.S., A.M.I.C.E.; V. E. Johnson, M.A.; G. P. Bragg-Smith, and W. H. Akehurst.

It is hoped that many more will try for record, and for the benefit of members the association records are for distance, hand-launched, C. B. Ridley, 560 yards; for distance, off grass, G. B. Bragg-Smith, 315 yards; for duration, C. B. Ridley, 61 seconds.

Council Meeting.

A Council meeting was held on Thursday, 15th inst., when there were present: Major B. Baden-Powell (in the chair), Mr. H. W. Browse, Mr. R. M. Balston, Mr. C. R. Fairey, Mr. T. O'B. Hubbard, Mr. V. E. Johnson, Mr. F. T. Pringuer, and W. H. Akehurst, Hon. Secretary.

Official Observers.—Messrs. C. R. Fairey and V. E. Johnson, M.A., were added to the list of London district.

An application from Mr. W. E. Evans was refused, as the Council consider that at present there are enough to meet any requirements.

Kite Corps.—Applications were received from Mr. L. Conolly, Mr. H. R. Stenning, Mr. R. Macrostie, and Mr. A. P. Wilkin for enrolment in the new corps. The secretary was instructed to register their names so that they can be called upon in order of date of application. There are still a few vacancies, and gentlemen wishing to join should send along their names at once; also there is required one or two wireless operators for the corps.

It is hoped by the Council that there is some patriotic lady or gentleman who will send donations for the outfit so that the corps can get to work at once. The men are willing to serve their country either at home or abroad, and will supply their own outfit.

Will someone come forward and subscribe the £800 required?

International Model Meeting.—An international meeting will be held in this country this year, if enough support is given, to enable the Council to offer prizes suitable for such an event. Anyone willing to subscribe to the fund should forward their donations to the hon. sec. at once.

Also three or four good trophies are required and will be named after the donor.

The Council have the refusal of four handsome £75 and £100 cups at a special price, therefore hope to be able to close with this special offer.

Competitions.—The Council have made arrangements with the National Aviation Co., Ltd., Harrow Aerodrome, to hold some of this year's competitions there on account of the splendid ground and the easy access from town. The ground covers over 250 acres of good level grass land, giving a straight run of over 1,500 yards and a circuit of over two miles. Therefore it will be an ideal spot for the motor-driven competitions, also for distance competitions, and the thanks of the Council to the Company have been conveyed by the hon. sec.

Membership.—All members are asked to introduce at least three new members this year.

W. H. AKEHURST, Hon. Sec.

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PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

MODEL CLUBS.

Aberdeen Aero Club (Sec., A. SEFTON, 387, HOLBURN STREET, ABERDEEN).

LAST Saturday a competition for duration was held at Kincorth flying ground, and was won by Mr. L. Gray, with a flight of 42 secs., who with the same flight established a new distance record of 950 ft. This member's model continued to fly splendidly all the afternoon, and repeatedly explored the neighbouring fields. Mr. Geddes had some excellent flights with a large model, and was second in the competition with a flight of 35 secs. Meeting to-day (Saturday) as usual.

Aero-Models Assoc. (N. Branch) (Sec., MALCOLM B. ROSS 15, HIGHGATE AVENUE, N.).

SATURDAY at Finchley ground, Corder, flying his latest "Argecy" mono, put up steady flights of upwards of 300 yards at first trials. Ross, Greene, and several others provided considerable interest to the spectators with varied flying. Every Saturday now flying at 3 p.m. On March 2nd, meeting at club's ground, Finchley (Messrs. Vivers and Sons, Lodge Farm Dairy), there will be an open competition for duration. Entry fee, 3*d.* each model. Total sum to be shared as first, second, and third prizes.

A set of Messrs. Mann and Grimmer's parts for building their well-known monoplane has been kindly presented by that firm to the club as a prize for an open distance event. Date and further particulars will appear shortly.

Bath and Somerset Aero Club (11, ELM PLACE, BATH).

MR. R. C. CROSS, on Saturday, at the weekly meeting at Gifford's Field, Englishcombe Lane, was, as usual, well to the front with his twin-tractor model, and after various adjustments some good flights were made by Messrs. Harry Cross and S. H. Baker's models. Mr. R. C. Cross secured the club's distance record for a flight of a quarter of a mile. Mr. G. M. Hick's model, notwithstanding persistent coaxing, refused to do much more than "jumps."

Birmingham Model Aero Club (Secs., R. COBHAM, G. H. WOOD, 8, FREDERICK ROAD, EDGBASTON).

MR. M. VALE and Mr. W. Lunn on Saturday, on the club aerodrome at Billesley Farm, showed a marked improvement in the flying of their respective models, both getting flights on the average of 35 secs. duration. A small tractor-screw model was making flights of about 30 yards. A small "Trykle" model belonging to Mr. Rogers made some high and fast flights, while Mr. E. Trykle himself was getting the best flights of the week, his model once flying amongst the yeomanry, who were practising in the next field, and once out of the aerodrome. Stirred by the efforts of Mr. E. Prosser's gliding model, Mr. E. Trykle converted his model to a glider, and beat Mr. Prosser's record with a glide of 44 yards down the gliding hill.

Messrs. Baker, Jones, Mason, Stamps, and Prosser were also flying well with their respective models, while big strides were made in the construction of the full-sized glider.

Blackheath Aero Club (Sec., A. B. CLARK, 12, MANOR ROAD, BROCKLEY, S.E.).

AT the Kidbrooke Ground last week there was a good attendance of members and spectators, and many of the latter are now beginning to take active interest in model aviation. Mr. L. B. Morris was getting good results from his small monoplane, and Mr. G. Brown was testing a new single-screw "tractor."

Messrs. A. E. Collins, Jarvis, H. H. Pizey, W. H. Egelstaff and H. S. Richards were flying "A" frame monoplanes, and Mr. C. B. Holland made many splendid flights with his 2¼-oz. single-sticker ("A.B.C. 40" type). Mr. A. B. Clark made a good duration flight of 48 seconds with his 2¼-oz. "Victor," but easily beat this with a new "A" frame model. The best flight with the latter was 61 seconds, and the estimated distance was between 550 and 600 yards; this model, however, weighs about 5 ozs.

At Wandsworth Common Mr. W. Williams was indulging in high flights, and the crowds much appreciated the *vol planés*, some of which lasted quite 15 seconds. Mr. L. H. Slatter succeeded in making his hydro-aeroplane rise from the water.

At Blackheath Mr. S. Hunt was experimenting with a light single-screw tractor, and easily obtained 150-yard flights, but the Etrich twin tractor constructed by Mr. Clark was very disappointing.

The numerous spectators at the Lee Aerodrome saw the finest exhibition of model flying ever witnessed at this ground. Mr. F. Plummer's new altitude model repeatedly climbed to over 150 ft. Mr. F. M. Bailey's Antoinette distinguished itself by making per-

fectly straight flights, and the models flown by Messrs. H. H. Pizey, C. Ford, F. Packham, R. Dodd, and F. G. Peter were flying well, and on several occasions the latter narrowly missed obtaining his 2nd class certificate.

The committee have pleasure in announcing Messrs. Weston Hurlin's gift of a half-guinea "W.H.C." model, to be offered as prize for a junior duration competition.

Every member should be present at the general meeting to be held to-day (Saturday), at 6 p.m., at the Central Hall, High Street, Peckham, when new rules will be discussed and the officials for the ensuing year will be elected.

The usual flying will take place during this week-end at the club's flying grounds at Blackheath, Lee, Kidbrooke, Grove Park, and Crofton Park.

Brighton and District Model Ae.C. (Hon. Sec. A. VON WICHMANN, "KINGSLEIGH," KINGSWAY, HOVE.)

EXCELLENT work done at Shoreham on 17th. Considerable number of spectators interested. Mr. Frost, after much perseverance, obtained beautiful flights with single-tractor "Antoinette." Longest was 92 yards, after rising off turf. Several flights exceeded 70 yards. Model was perfectly stable, and landed well, taxi-ing to a standstill. Rose in 10 ft., driven by twin-gear motor to remove torque; no angle of incidence on either tail or main planes; slight dihedral to wings, and small vertical fin under tail. Mr. Bate was testing incredible number and variety of machines. Did over 50 secs. and 400 yards. One model went up to immense height. After adding chassis, Mr. Burghope was trying to get his new 23-oz. model off turf; not quite enough power for rising, but flew magnificently when launched by hand; once landed sideways while doing over 20 m.p.h., light chassis undisturbed. In one flight, big model came into contact with wing of Gnome-Blackburn. Nothing smashed, but much amusement was caused. Messrs. Burghope and Wichmann flying "Mann," built in less than half-hour from parts; 350 yards second flight. Mr. Orford's "Valkyrie" rose easily, and flew well. Messrs. White and Sanderson doing well. Mr. Allen's helicopter rose, but had very little forward motion. Still it covered over 20 yards. New members welcomed and wanted.

Bristol Model Flying (Sec., R. V. TIVY, 3, ROYAL YORK CRESCENT, CLIFTON).

ON February 15th model flyers had an opportunity of attending an instructive lecture by Mr. W. G. Aston on "Automatic Stability." At Saturday's meeting the best flights were by Mr. Vessey's twin-screw cylindrical flyer (200 yards). Efficiency contests will probably be held shortly. Meeting at Sea Walls February 24th, at 3 p.m.

Coventry Aeroplane Building Society (Sec., J. W. SCHOFIELD, 22, KINGSTON ROAD, EARLSDON).

MEMBERS are having their usual flying practices in field in Birmingham, and also on Hearsall Common. Prizes value £4 are offered during the season for competitions. Members are busy engaged on scale and other models for an exhibition of models and apparatus to be held in Corn Exchange, March 30th, to be open from 10 a.m. to 10 p.m. It is expected that some person of note in Coventry will open the exhibition. A musical programme will be arranged. The society intend to make this show a complete success, and invite the co-operation of other clubs (with a special appeal to Birmingham Aero Club) or traders in model accessories to make a good display of models. Communications to the secretary.

Croydon and District Aero Club (158, HIGH STREET).

ON Saturday, at Wimbledon Common, Mr. P. H. Hart started the flying with several good flights of about 1,000 feet at a good height. Messrs. D. Pavely and C. Smither both had good flights with their models, which were of similar design, and in a test Mr. Pavely's model beat Mr. C. Smither's model by one second with a flight of 43 seconds. Mr. H. Smither obtained a flight of about 1,000 feet in a straight line, but the model wanted another strand of elastic, as it had about 200 turns on when it landed. Mr. C. Smither then measured one of his flights, which was 1,370 feet, but he had previously obtained a flight of approximately 2,000 feet and duration 50 seconds.

Dover and District Model Ae.C. (Sec., H. D. DAVIS, "OAKVILLE," GODWYNE ROAD, DOVER.)

STORMY weather prevented any meeting on Wednesday last week, but Saturday afternoon saw a fair turn out and some good flying. Whorwell, Wilson, and Holman were in the forefront, as usual, the latter giving a very interesting exhibition with his home-made W.H.C. model, he also successfully completing the tests for his 2nd and 3rd class certificates.

It would be an encouragement to the officers of the club if *all* members would, whenever possible, make a point of being present at the meetings. Don't say it doesn't matter if *I* don't turn up, but keep in mind that *you* are the very man we want to ensure the success of the club.

Ealing and District Model Ae.C. (Sec., B. J. KIRCHNER, 1, QUEEN'S GARDENS, EALING, W.)

AT the meeting on the 17th Master L. Kirchner's new monoplane flew well at a good height and had a good turn of speed; its longest flight was 396 feet. J. Esch's model, built for climbing, fulfilled its purpose by getting up to good altitudes and also getting durations of 25 seconds. G. Beeching's model's longest flight was 510 feet. L. Roche again proved himself to be the club's "crack" flyer by getting consecutive flights of 847 feet and 1,030 feet, the latter being a club record for distance. This flight would doubtless have exceeded the quarter of a mile but for a tree stopping its career when going strongly at a height of 30 feet. On Sunday G. Beeching was attacking the club's duration record, but missed it, doing flights of 28, 30 and 31 seconds repeatedly. It would be interesting to know the various records of other clubs for the sake of comparison. Owing to an unfortunate error, the date of competition held on the 10th inst. was given as January 27th. To-day (Saturday) at 2.30 p.m. there will be a competition for juniors, the prize being a keyless wrist watch, kindly offered by a member. Conditions will be announced on field, so that competitors will have to bring models of all round excellence. Two new members were enrolled. Communications to secretary.

Paddington & Districts Ae.C. (Sec., W. EVANS, 133, BUCHANAN GARDENS, HARLESDEN).

MR. V. E. JOHNSON, M.A., has kindly accepted club's offer of presidency, and will give members his presidential address on Saturday, March 9th. Subject—Model Aeroplaning: Its Prospects and Probable Future.

New members: Mr. C. Davies (of Twining's) and Mr. A. Wheeler. Mr. Davies offers a first prize and Mr. Hurlin a second prize, values to be announced later, for the best improvements or inventions by club members to increase efficiency of model aeroplanes, power or rubber-driven, during the year. Competition closes December 31st. A member may register an idea at any time by giving the secretary full details of such—this to protect him until the idea is perfected, when he will be granted a "club patent." Mr. Levy is first in the field, having registered a plane of unique design to ensure perfect stability, Mr. Cannell a three-bladed propeller, and Mr. Evans a four-bladed propeller. A keen and very interesting contest is anticipated.

Weston, Carter, Woolley, Davidson, Holden and Evans flying Saturday last at club's private flying ground, Parkside, Sudbury, Weston gave exhibition flights (quite oblivious of the fact that he was due at Wimbledon competition) with his new rise-off-ground model, doing 300, 400, and finally 500 yards. In the evening judging of workshop models took place at workshop, a maximum of 50 points awarded for construction, and a further 50 points will be awarded for flights at Parkside, Saturday, February 24th. Time 3.30 to 5 p.m. Cannell, Canning, Carter, Rasmusson and Woolley compete.

Monthly general meetings altered to first Saturday in month. Canning's lecture will therefore be given on March 2nd instead of March 6th. Time 8 p.m. at workshop.

A competition for beginners is under consideration.

Palmer's Green and District Model Ae.C. (15, MOFFAT RD., N.).

ON February 10th, a successful open duration competition was held at Powys Lane. The best duration was made by E. R. Brown with a "Mann parcel" monoplane. Time, 65 secs. This machine flew at a very high altitude. Second place was taken by R. Ellis, of Lower Edmonton, with a machine of his own design. It flew for 55 secs. M. B. Ross, of Highgate, came very near with a good flight of 52 secs. H. Lingard had hard luck, as he managed to break his light model after a trial flight of 47 secs.

On February 17th another good meeting was held. E. Brown, with his "Mann," got in some splendid flights. The best of his performances ended in trouble, for his model now reposes at the very top of a huge oak and cannot be reached. H. Lingard was obtaining fine "durations" with his 2¼-oz. model. On the following day he obtained a flight realising 80 secs. J. Reed has also been getting in some splendid work, his model having made marvellous improvement of late.

Next Saturday, at 3 o'clock, "steering-to-post" competition.

Reigate, Redhill and District Aero Club (Sec., H. V. MAY, 4, LONDON ROAD, REIGATE).

MESSRS. LEWIS and May were out on Tuesday last week, but owing to the conditions of the weather, flights were short. However, Mr. Lewis got his double-surfaced wing tuned up and made splendid flights with it on Saturday. The club turned out strong on Saturday, Mr. R. Wilson being out once again. All machines did well, doing from 750 to 1,000 feet, and flying was very consistent. The "Babies" both came to grief, but the wind did not affect the heavier models. Mr. Morris was experimenting with a new "Gull" wing, which proved extremely fast. Next day Messrs. Morris, May and

Lewis were out again, and although the wind was rather heavy at times, Mr. Lewis's "Almono" made several good flights, one close on the quarter mile. The club meets again to-day (Saturday) at 2 o'clock on the Earlswood flying ground.

St. Mary's Model Ae.C. (Sec., H. W. A. JOHNSON, THE VICARAGE, KINGSTON, PORTSMOUTH).

THE second monthly competition was held on Saturday week. Results were as follows:—Distance: 1st, E. Eburne; 2nd, E. Restall; 3rd, J. Haswell. Duration: 1st, E. Eburne; 2nd, C. Restall; 3rd, J. Haswell. Point-to-point, of 60 yards side triangle: Winner, E. Eburne.

Monthly business meeting was held on Wednesday last week. Subscription fund for glider was started, and a library committee was elected.

On Saturday last there was a good attendance of members, and Messrs. C. Restall and H. Harper passed tests for third class certificates. Others making good progress.

Salisbury Model Aero Club (Sec., S. J. ROBINSON, 39, CATHERINE STREET).

DESPITE bad weather, several members were out on Wednesday. Sear made good flights, and Besant brought out a new biplane.

Saturday saw some better flying. Sperring was the most fortunate, managing to put up a total for the afternoon of 3,438 ft., which has given him a good lead in the monthly aggregate distance competition. The secretary would like to see more "rise-from-the-ground" models, so as to warrant the institution of club records and competitions for this class of model.

Scottish Ae.S. Model Aero Club (6, MCLELLAN STREET, GOVAN).

ON Friday evening last week, in the institute, Mr. W. J. Phillips delivered an exceedingly bright address on "Fictional Flight." The lecturer dealt with the various "flyers," from Daedalus to Henson, and the beautiful selection of slides shown by limelight were much appreciated. The attendance was regrettably small, and the committee hope that members will turn out in larger numbers next Friday, March 1st, in the Institute, Elmbank Crescent, when Mr. Andrew Forson will speak on "Chassis Design." Friends interested are cordially invited. Members will please remember the smoking concert to be held on February 29th in the Lansdowne Restaurant, Hope Street. Much depends on the success of this event. There was a fair turn-out of members last Saturday at Barrhead Aerodrome, when the second monthly competition took place. Results: Mr. W. Langlands, distance 1,014 ft., duration 40⅘ secs.; Mr. J. Mills, 985 ft., 41 secs.; Mr. J. C. Balden, 629½ ft., 39½ secs. Distance and duration are separate flights. Good flights by Messrs. Cameron, Donaldson, Ross and Gordon. Mr. Donaldson's machine caused great amusement by taking a "header" into the burn which flows along the boundary of the aerodrome.

There will be model and kite flying at Ibrox to-day, Saturday. Members will oblige by turning up in force, as it is hoped to arrange definitely the venue of the hydro-aeroplane meeting. Several of these machines are now ready for trials. Floats are made from rubber tubing, as used in babies' feeding-bottles, inflated with cycle-valve and inflater. The second half of the club's year will commence about the middle of March, when new members will be admitted at a subscription of 4s. for the half session which ends in September. Full particulars and leaflets from the secretary, Mr. Wm. Foster, "Rochelle," Limeside Avenue, Rutherglen.

Sheppey Model Aero Club (Sec., G. G. HARRIS, 40, WOOD STREET, SHEERNESS).

ON Saturday last the first meeting of the club was held on Goodhew's Meadow, and resulted in some good sport. The "Mann" monoplane flown by Mr. H. Fuller made some good flights, but evidently requires tuning up, the last essay with it being about 400 ft. Mr. Harris put up the club's record to 730 ft., his model losing distance through circling. The "Baby Fuller" and Mr. Harris's 2¼-oz. model also did well. Several new members were enrolled, and the club is now on a firm footing. New members will be heartily welcomed. Next meeting to-day (Saturday) on Goodhew's Meadow.

Stony Stratford and District Kite and Model Ae.C. (Hon. Sec., O. HAMILTON, JUN., OLD STRATFORD).

A MEMBERS' general meeting was held on February 1st at the club-room, Mr. C. L. Matson in the chair, in the unavoidable absence of Mr. R. W. Field. In connection with the exhibit of models, it is proposed to open at 7.30 p.m. Members are requested to turn up at 7 p.m. with their models, &c. Mr. R. Benbow (one of the members of the junior section) read the paper for the evening, entitled "Some Points in Models," by G. Pugh, an interchange with the Bootle and District Aero Club. An interesting discussion followed, in which Messrs. Brown, Benbow, Elmes, Matson, and the secretary took part.

Members of the committee are requested to put in an appearance at the exhibit on February 29th, so the secretary can arrange a committee to draw up the programme for the opening day at the club ground, as the provisional date is only a month ahead.

Worcester Model Aero Club (Sec., S. A. SEARS, VICTORIA INSTITUTE, WORCESTER).

SOME fine flying took place at the club flying ground on Saturday, the weather conditions being perfect. Twelve machines of great variety were out. Messrs. Colton, Melhuish and Smith made the best performances; everybody, however, suffered owing to their machines circling. Meeting as usual to-day (Saturday) at 3 o'clock on Pitchcroft.

Yorkshire Ae.C. (Model Section) (5A, HULLAND ST., LEEDS).

MEET to-day (Saturday) on Woodhouse Moor at 3 p.m. A lecture has been arranged to take place at the Hotel Metropole, on the 27th inst., particulars of which will have been sent to all members prior to the appearance of this notice.

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CORRESPONDENCE

*** *The name and address of the writer (not necessarily for publication)* MUST *in all cases accompany letters intended for insertion, or containing queries.*

Correspondents communicating with regard to letters which have appeared in FLIGHT, would much facilitate ready reference by quoting the number of each letter.

Longitudinal Stability.

[1496] I read Mr. Atkinson's article in FLIGHT of February 10th with interest, but the impression conveyed, if I understand it rightly, that "tail-in-front" machines ought to be more stable than "tail-behind" ones, is not confirmed by further consideration. The point that the angle of attack of the leading plane should exceed that of the trailing one has been long established. The other point—relating to the travel of the resultant centre of pressure—is, I believe, novel, but its value is open to question, I fear. If we put $\theta = 0$ in the expression for the ratio S_1/S_2 denoted by κ, we find $S_1 \sin\alpha = S_2 \sin\beta$, which means that the loads carried by the two planes should be equal, and the displacement is nearly a maximum for any small angles of tilt, such as 1 or 2 degrees. If this result has any real significance, it is an argument in favour of Langley's type of biplane tandem; but as Langley's type has not so far come into use, the point is not of much practical interest. With regard to tails, I take it that a "tail" means a plane, carrying load or not, which is fairly small compared to the main plane—say, one-fourth to one-tenth of it in area. If now we assume a value of κ—say, $\kappa = S_1/S_2 = \frac{1}{6}$, the leading plane is the tail; if we assume $\kappa = S_1/S_2 = 6$, the trailing plane is the tail. Take now a concrete instance, with $\sin\alpha = \frac{1}{7}$; $\sin\beta = \frac{1}{10}$; that is nearly enough $\alpha = 7°$; $\beta = 5\frac{3}{4}°$; and assuming θ to be a fraction of the same sort of size, solve for θ in Mr. Atkinson's formula. With tail first, $\theta = -\frac{1}{19}$ nearly, really a shade less. With the tail behind, $\theta = \frac{1}{4}$ nearly, really a shade more. These are the values of the tilt, and are downward at which the displacement of the centre of pressure is a maximum. The advantage, if any, lies with the tail behind, but the conditions are at least dangerous, for in both cases the main plane is edge on to the line of flight, and is giving no support. The machine, as a whole, must be therefore falling with a large acceleration, and subsequent events must be really determined by the altitude, regarding the horizontal, which it has taken up (which depends on its path since it began to tilt over) and its speed, which may have varied in consequence, rather than by trifling differences in the travel of the c.p.; for it will be found that altering κ from 6 to 4, for instance, makes very little difference in the limiting angles. In fact these and other like questions of stability regarding aeroplanes cannot be settled by methods which ignore angular and other accelerations. There are corresponding questions about the stability of ships. A ship must have some "stiffness" when upright. The corresponding point in an aeroplane is that the leading angle of attack must be the largest. But the form which gives great stiffness to a ship is one thing, while small angles of roll and general steadiness are other things, and these three things are not only different, but so inconsistent that great stiffness may be not only uncomfortable, but dangerous. The aeroplane must have some stiffness, but how much is in its case, as in that of the ship, a question whose answer is not easy to find, and cannot be found by those simple methods which are perfectly competent to deal with steady motion.

Belfast. MAURICE F. FITZGERALD, M.I.M.E.

Engaer, and Bird Flight.

[1497] I was much interested in Mr. G. L. Davidson's article in the *Nineteenth Century*, to which my attention was called by Mr. C. E. Maude in letter 1474. Mr. Davidson contends that most aeroplanes fly by reason of their planes deflecting a certain mass of air downwards and thus by reaction obtaining support, but that the ideal aeroplane should rather obtain progression by accumulating a pressure of air under the wing and so use the air expansively. In both cases, I presume, the reduced pressure on the upper surface is of material assistance.

It seems that Mr. Davidson is designing a curved surface that will accumulate pressure under it without any resultant motion of the air. The new Wright glider was held up as an example of the soaring plane that had achieved success on the lines adopted by Mr. Davidson, but (and here I invite correction), from accounts and photographs the "soaring flights" in question took place from the top of a hill in a good stiff breeze, under such circumstances that when the machine glided down against an upward trending wind it appeared to be stationary.

Mr. Davidson's article leaves me in a state of dejection, for surely among the countless machines that have been built, there must have been one whose wings possessed that elusive curvature that is the key to soaring flight! Dr. Hankin, however, has now left us in the hands of the scientists, eagerly awaiting the discovery of some new explosive tendency in the element that we had come to regard as so harmless.

I should like to hear Mr. C. E. Maude's own opinion of the article to which he so kindly drew our attention.

Vigo, Spain. D.T.

Chain-Driven Propellers.

[1498] Referring to Mr. Douglas Graham's letter (1491), he is in error as to one or two points in connection with chain driving, notably in stating that a crossed chain is subject to enormous wear and tear.

If a crossed chain is arranged in properly-designed guide tubes, the wear and tear is negligible.

I have had a pair of chains running constantly on one of my machines for two years, and the wear and stretch is so little that the chains should be good for another two years' work.

If one chain should break or come off the sprockets there is no serious danger, unless the motor cannot be stopped. I speak with certain knowledge on this point.

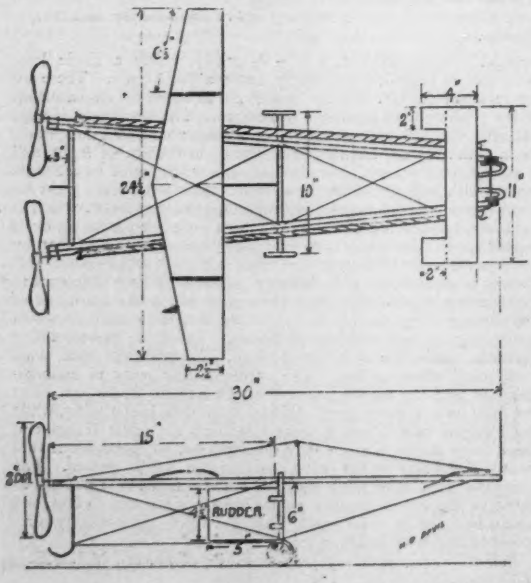
The single chain in Mr. Graham's design is transmitting the whole engine power. The outside jockey pulley, taking twice the chain load, might, therefore, with a 40-h.p. engine, be running under a load of perhaps 2,000 lbs.

Eastchurch. ALEC OGILVIE.

MODELS.

A Self-Rising Monoplane.

[1499] I enclose sketches of my twin-screw racing monoplane. The machine has travelled a distance of 1,200 ft. at a fair height.



The frame is of birch, 30 ins. by ¼ in. square; the propellers of birch steamed to shape. The frame for the main plane is made of birch, while each stay is bent to the correct camber, the fabric used is Hart's. The elevating plane is of $\frac{1}{32}$ in. spruce. The chassis is fixed to the frame by means of two L brackets. Each propeller is driven by twelve strands of $\frac{1}{16}$ in. rubber. Cycle valving is placed over the hooks, whilst Clarke's rubber lubricant is used.

Dover. H. D. DAVIS.

PUBLICATIONS RECEIVED.

Flying for You and Me. A Handbook of Aircraft. By L. Blin Desbleds and B. I. Fry. London: Aeronautical Publications, 39, Victoria Street, Westminster. Price 6*d.*

Theorie und Berechnung von Motor-Luftschiffen. By Dipl. Ing. C. Eberhardt. Berlin: M. Krayn, Kurfurstenstrasse II. Price 10 marks.

Catalogue.

Model Aeroplane Motors and Accessories. G. Summerfield and Co., Sherrard Street, Melton Mowbray.

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L. Howard-Flanders, Ltd., Aeroplane Manufacturers, Hangar No. 33, Brooklands Aerodrome, Weybridge, Surrey.—Capital £6,000, in £1 shares (5,000 ordinary and 1,000 deferred ordinary).

Aeronautical Patents Published.

Applied for in 1910.

Published February 22nd, 1912.

24,908. E. BOURDELLES. Stabilising of aeroplanes.
30,111. H. FABRE. Flying machines.

Applied for in 1911.

Published February 22nd, 1912.

2,557. J. L. GARSED. Operation of planes or wings and rudders.
8,394. A. E., H. L., AND H. O. SHORT. Propelling mechanism.
12,880. L. B. HOLLAND. Aeroplanes.
18,133. R. ESNAULT-PELTERIE. Landing devices.

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